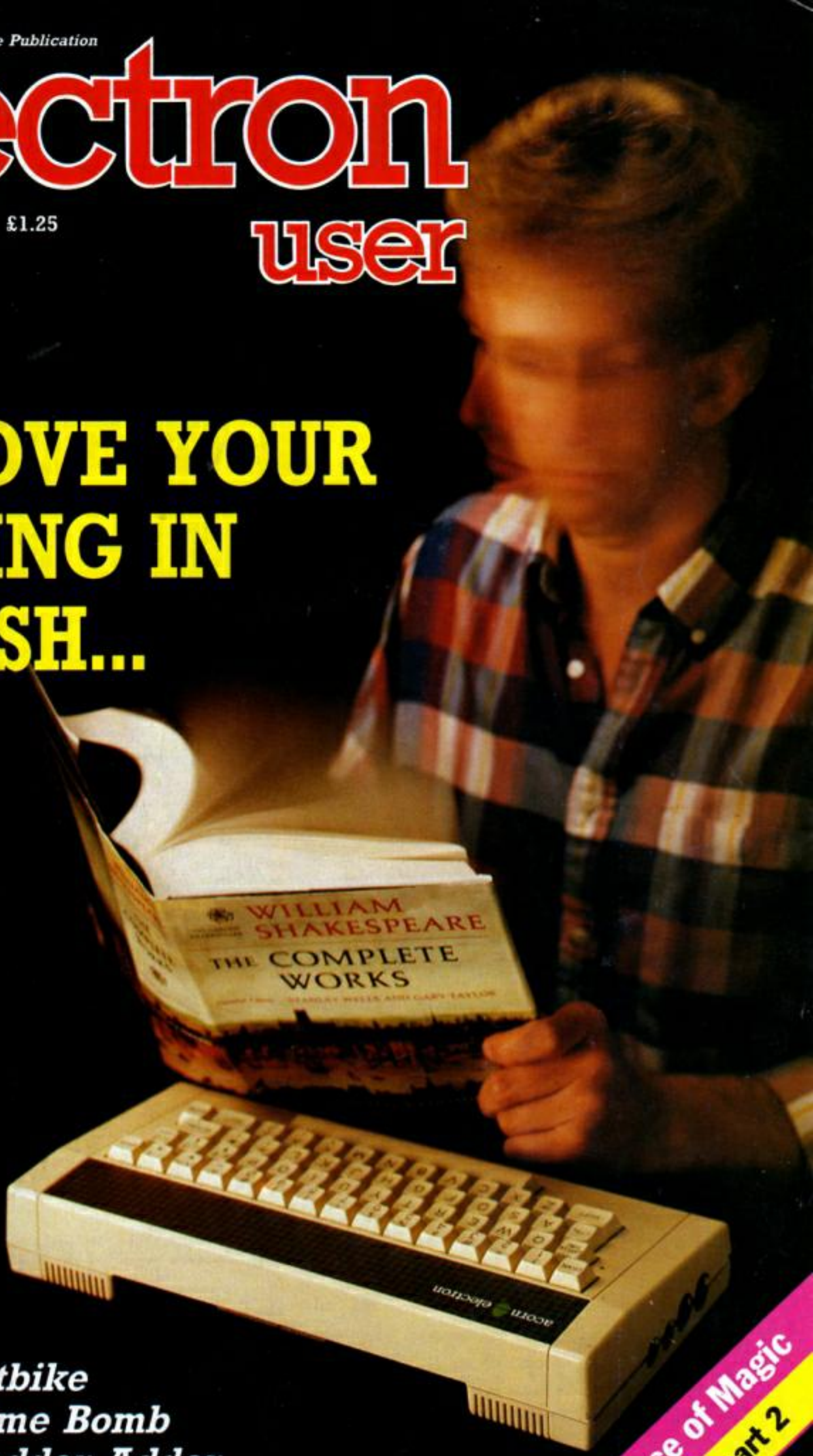
A Database Publication

electron user

Vol. 6 No. 10 July 1989 £1.25

IMPROVE YOUR READING IN A FLASH...



Reviews

Stormcycle
Predator
Sam 8

Type-in games

Jetbike
Time Bomb
Ladder Adder

Palace of Magic
Map part 2

PLAY IT AGAIN SAM 10

SUPERIOR APPROVED

ZALAGA
Aardvark's Arcade Classic

The award-winning, classic shoot-em-up from Orlando, the author of Firetrack and Frak! Fast, furious and graphically superb.

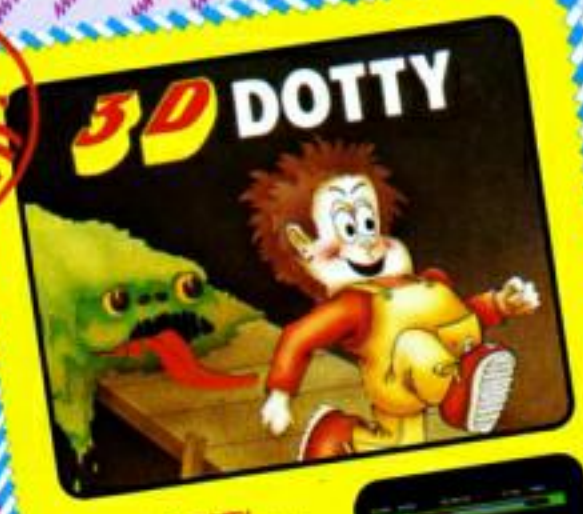
"Technically excellent...very addictive...one always feels compelled to play again to discover what the next sheet is like"...Acorn User

NEW RELEASE

QWAK
A New Release from Superior

An action-packed game with 24 entirely different and very amusing levels of play. Collect the keys and fruit, shoot bubbles of the monsters and avoid the spikes. If you can! QWAK the duck takes over where the CHUCKIE EGGs left off.

SUPERIOR APPROVED



3D DOTTY
The Smash Hit from CDS

A very colourful and addictive 3-dimensional version of the arcade classic.

"Great fun...the practice option for all 8 screens gives you a chance to fine tune, before dazzling an audience with your skills. Recommended."
...A & B Computing

A Superior Hit

REPTON THRU TIME
Superior's No. 1 Hit

Repton's greatest adventure, travelling through 40 screens from prehistory to the future. Also includes screen and character editors.

"Very brightly designed characters...it certainly grabs your attention. GOLDEN ELECTRON GAME"
...Electron User

PLAY IT AGAIN SAM 10 for the BBC Micro and Acorn Electron

Superior has combined an award-winning classic game with a top-quality brand-new release and two recent smash hits. The result is one of the best ever four-game compilations. Great value for money. Don't miss it for your collection!

BBC Micro Cassette	£9.95	Acorn Electron Cassette	£9.95
BBC Micro 5¼" Disc	£11.95	BBC Master Compact 3½" Disc	£14.95

(Compatible with the BBC B, B+ and Master Series computers)

Please make cheques payable to "Superior Software Ltd".

(The screen pictures show the BBC Micro versions of the games.)

HAVE YOU GOT THE COMPLETE COLLECTION?

All these previous PLAY IT AGAIN SAM four-game compilations are still available from your local dealer or direct by mail order from Superior Software. Prices are the same as for Play it Again Sam 10.

PLAY IT AGAIN SAM 1 - Citadel, Thrust, Stryker's Run, Ravenskull
PLAY IT AGAIN SAM 2 - Repton 3, Crazee Rider, Galaforce, Codename: Droid
PLAY IT AGAIN SAM 3 - Commando, Palace of Magic, Killer Gorilla, Killer Gorilla 2
PLAY IT AGAIN SAM 4 - Frak!, Spellbinder, Cosmic Camouflage, Grand Prix Construction Set (BBC Micro only), Guardian (Electron only)
PLAY IT AGAIN SAM 5 - Imogen, Elixir, Bug Blaster, Fortress (BBC Micro only), Moonraider (Electron only)
PLAY IT AGAIN SAM 6 - Galaforce 2, Hunchback, Hopper, The Sentinel (BBC Micro only), Video's Revenge (Electron only)
PLAY IT AGAIN SAM 7 - Firetrack, Bonecruncher, Snapper, Ghouls
PLAY IT AGAIN SAM 8 - Winter Olympiad 88, Quest, Around the World in 40 Screens, Mr. Wiz
PLAY IT AGAIN SAM 9 - Camelot, Steve Davis Snooker, Spycat, The Life of Repton

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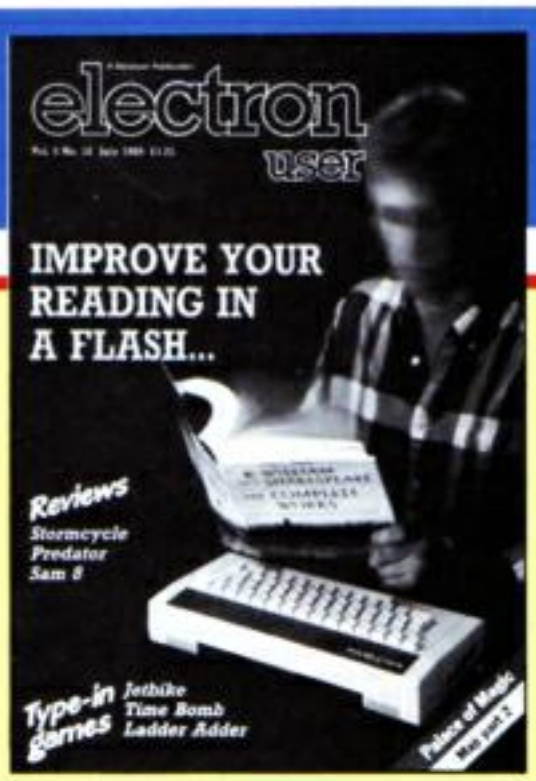

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10 educational games for the Electron for just £5.95

Learning has never been such fun!

fun school 2

Fun School 2 for Over-8s contains:

- **Build a Bridge:** Shape-fitting challenge
- **Passage of Guardians:** Enjoy anagrams
- **Unicorn:** First steps in problem solving
- **Logic Doors:** Mapping made easy
- **Souvenirs:** An introduction to travel
- **Code Boxes:** Discover binary arithmetic
- **Mystery machine:** Have fun breaking codes
- **Escape:** A final check on progress

Fun School 2 for 6 to 8 year olds contains:

- **Number train:** Calculations made enjoyable
- **Shopping:** Which shops for which products?
- **Maths Maze:** Fun improving arithmetical skills
- **Treasure Hunt:** Introduction to coordinates
- **Bounce:** Get to grips with angles
- **Packing:** Discover tesselating shapes
- **Caterpillar:** Word building challenge
- **Number jump:** Have fun practising tables

Fun School 2 for Under-6s contains:

- **Shape Snap:** Colourful shape recognition
- **Find the Mole:** Experiment with number sizes
- **Teddy Count:** Ideal introduction to numbers
- **Write a Letter:** Creative fun at the keyboard
- **Colour Train:** Play at spotting colours
- **Pick a Letter:** Word building made easy
- **Spell a Word:** Enjoy naming the pictures
- **Teddy Bears Picnic:** Move around a maze

Now children can really have fun while learning. Fun School 2, designed by a team of educationalists, is available for three age groups: Under-6s, 6-8 year olds and Over-8s. Each pack comes with eight colourful and exciting programs, a colourful button badge and detailed instructions giving educational help.

The computer itself monitors the child's progress. The skill level – initially set by parents – is automatically adjusted to suit the child's ability.

Now children can enjoy using their parents' computer while they learn at their own pace.

Available for:
Spectrum, Commodore 64, Amstrad CPC, BBC Micro/Electron £9.95 (tape) £12.95 (disc).

Also: Atari ST, Amiga, PC £19.95 (PC version released in May)

DATABASE EDUCATIONAL SOFTWARE

Format	Under-6s		6-8 years		Over-8s	
	Tape	Disc	Tape	Disc	Tape	Disc
Spectrum	9094	9095	9096	9097	9098	9099
Commodore 64	9064	9065	9066	9067	9068	9069
Amstrad CPC	6179	6180	6181	6182	6183	6184
BBC Micro/Electron	2239		2242		2245	
BBC B+/Master 40T		2240		2243		2249
BBC B+/Master 80T		2241		2244		2250
Atari ST		9192		9193		9194
Amiga		9842		9843		9844
PC 5.25"		5764		5765		5766
PC 3.5"		5767		5768		5769

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electron user NEWS

Audiogenic releases new Electron titles

ELECTRON games players are being well served to a feast of new titles from Audiogenic Software (01-861 1166).

Due out soon is Lone Wolf – The Mirror of Death. It is the first in a series of games based on Lone Wolf, the hero of 13 role-playing books written by English author Joe Dever which have sold six million copies worldwide.

Basically a combat game, it has role-playing elements with Lone Wolf fighting to conquer the tower stronghold of Kazan-Gor and recover the fabled Lore-stones of Nyxator.

Role playing was the basis of the off-beat launch for the game when 60 guests were given mythical characters and invited down Chislehurst Caves to search for Lone Wolf. They were then treated to appropriate refreshments including roast wild boar and venison.

The Electron version without venison, will cost £9.95 on cassette.

August will see the launch of Emlyn Hughes Arcade Quiz. The former skipper of England and Liverpool has given his name to this multiple choice question and answer program based on a typical pub quiz and combined with some arcade-style action. Again, the Electron price is likely to be £9.95.

Other recent Electron releases from Audiogenic are Blast, an original game with familiar elements from the author of Shark and Fab Four, a four game compilation of Thunderstruck 2, Omega Orb, which have never previously been compiled, plus Psycastria 2 and Sphere of Destiny 2 which are re-mixes of classic originals. Both cost £9.95 on cassette.

Author Joe Dever with Beverley Gardner of Audiogenic who took the role of princess for the launch of the first Lone Wolf game in Chislehurst Caves.

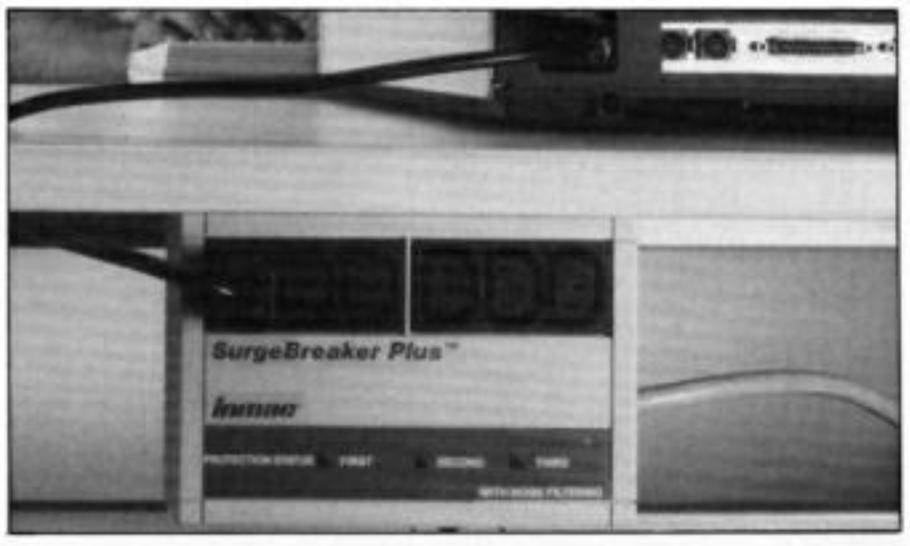
ESPA into Europe

THE fledgling ESPA – Entertainment Software Publishers Association – has sidestepped a sticky problem and gone international at one fell swoop.

After discovering that its initials coincided with those of the Educational Software Publishers Association, it has changed its name to ELSPA, the European Leisure Software Publishers Association.

By doing so it has also opened up membership to many continental software houses which have expressed an interest.

"There was added impetus to include European in the name because a lot of our members export into Europe and there are firms in other countries that we would like to include in our membership", said chairman Andrew Hewson.



HEAVY mains surges can be caused by lightning, but Inmac (0344 424333) has developed a three tier protection.

The Surgebreaker has three suppression circuits which ensure that after the first one blows to absorb the energy there are still two circuits left for further surge protection. It costs £59.

Borrowed Basic editor

A BASIC editor is now available for Electron users. Pres (0276 72046) has just brought out Basic Editor Plus.

It adapts the BBC Micro's Basic Editor for use on the Electron with the addition of extra code and has a routine which will reduce the size of disc programs. It comes in cartridge and rom forms ranging in price from £30 to £38.

The mega micro shopping spree

ELECTRON users will have a treat in store later this year when an ambitious new computer show is launched. It's the Computer Shopper Show, to be held in the Great Hall of the Alexandra Palace from November 24 to 26.

Sponsored by Computer Shopper magazine and organised by Database Exhibitions, it will hit a huge market by combining four traditional shows from the festive season.

The Computer Shopper Show replaces the Electron & BBC Micro User Show, the Commodore and Atari Christmas shows and the Amstrad Computer show.

It will combine all the new products, special features and bargains from these events into what is confidently being billed as the world's largest computer shopping spree.

Easier on the eyes

RECENT evidence suggests that the low level electromagnetic radiation emitted by cathode ray tubes may be just as harmful to health as the screen glare and static which affects many people who use VDUs for long periods.

French company DMS has developed a new kind of screen filter called the Aquila Permamesh. It supplements the usual carbonised mesh with a special alloy coating.

DMS claims the metallised filter is a fully effective shield against low level radiation. It is being marketed in the UK by Accodata (0732 885555) and Clovis (01-883 7520). Price £78.

Gallup Software Chart

THIS MONTH	LAST MONTH	TITLE (Software House)	COMMENTS	PRICE
1	1	**STORMCYCLE** *Atlantis*	Save the Earth from imminent invasion and disaster by finding five diodes, killing the enemy and beating the clock.	1.99
2	•	**FRAK** *Aardvark*	A good five years old now, this game from Orlando was one of the first for the Electron. Definitely a collector's piece.	7.95
3	9	**COMMANDO** *Encore*	A Rambo-style shoot-'em-up against the odds. Now on a budget label, but you can also buy it as part of Play it Again Sam 3.	2.99
4	4	**JOE BLADE** *Players*	Consistently high in the charts, community-conscious Joe sets out on the original arcade adventure. Great fun.	1.99
5	17	**STEVE DAVIS SNOOKER** *Blue Ribbon*	A classic in sports simulations and destined to remain so for some time to come. If you have never played this get it.	1.99
6	7	**JOE BLADE 2** *Players*	The graphics are good and the game very playable. The puzzle screens are difficult and will keep you busy for hours.	1.99
7	11	**GRAHAM GOOCH TEST CRICKET** *Alternative*	Originally released by ASL, it is more suited to its budget price. Only recommended if you can't wait for the next Test.	1.99
8	3	**TRIPLE DECKER** *Alternative*	These games were originally listings in *Electron User*. There can be no argument about their value for money.	1.99
9	•	**ANARCHY ZONE** *Atlantis*	Returning to the charts, a superb arcade adventure that musn't be missed. If you like fast action you'll be quite at home.	1.99
10	19	**CREEPY CAVE** *Atlantis*	A strange place to lose your keys, but stranger things have happened. Fun, colourful and enjoyable romp.	1.99
11	•	**LAST OF THE FREE** *Audiogenic*	Here's another title which has not been in the charts for several years. And it's still selling even at this price.	7.95
12	•	**INDOOR SOCCER** *Alternative*	A simple game at a budget price. Good value and well worth it. Nothing spectacular, but a well executed simulation.	1.99
13	•	**MR WIZ** *Blue Ribbon*	Now available at the budget price, a nice Pac-Man style game. Also available as part of Play it Again Sam 8. Fast and addictive.	1.99
14	•	**STAR FIGHT** *Alternative*	Returning to the charts is this fun and simple space blast. Not a very original idea and it doesn't offer anything special.	1.99
15	•	**COMBAT LYNX** *Alternative*	Wartime helicopter game sets a mission for the more adventurous. A good introduction to the world of flight simulators.	1.99
16	13	**FRANKENSTEIN 2000** *Atlantis*	If you enjoy things that go bump in the night you'll like this. More of a cross between Inner Space and Fantastic Voyage.	1.99
17	•	**WAY OF THE EXPLODING FIST** *Mastertronic*	A classic martial arts fighting game and a perennial favourite. A good budget priced example of the genre.	1.99
18	•	**PLAY IT AGAIN SAM 8** *Superior*	A five-game compilation consisting of Winter Olympiad '88, Quest, Around the World in 40 Screens and Mr Wiz.	9.95
19	•	**CHESS** *Various*	Not new, but very few board games transfer successfully to the computer screen. Chess is one that makes it.	9.99
20	•	**STOCK CAR** *Micropower*	Another old title which has made its return. Race around the track to your heart's content with this one.	9.99

SOFTWARE Bargains

COMPILATIONS

TITLE	F	RRP	SALE
ACORNSOFT HITS 1	C	9.95	4.95
(Magic Mushrooms, Maze, Planetoid, Monster)			
ACORNSOFT HITS 2	C	9.95	4.95
(Starship Command, Arcadians, Snooker, Meteors)			
MICRO POWER MAGIC 1	C	7.95	5.75
(Stock Car, Felix Evil Weevils, Esc. Moonbase, Swag, Chess, Bandits at 3, Galactic Commander, Adventure, Cybertron Mission, European Knowledge)			
MICRO POWER MAGIC 2		7.95	5.75
(Bumble Bee, Gauntlet, Rubble Trouble, The Mine, Frenzy, Felix Fruit, Danger UXB, Swoop, Positron, Killer Gorilla)			
PLAY IT AGAIN SAM	C	9.95	6.95
(Citadel, Thrust, Strykers Run, Ravenskull)			
PLAY IT AGAIN SAM 2	C	9.95	6.95
(Repton 3, Crazee Rider, Galaforce, Codename Droid)			
PLAY IT AGAIN SAM 3	C	9.95	6.95
(Commando, Palace of Magic, K. Gorilla, K. Gorilla 2)			
PLAY IT AGAIN SAM 4	C	9.95	6.95
(Frak, Spellbinder, Cosmic Camouflage, Guardian)			
PLAY IT AGAIN SAM 5	C	9.95	6.95
(Imogen, Bug Blaster, Moonraider, Elixir)			
PLAY IT AGAIN SAM 6	C	9.95	6.95
(Galaforce 2, Hunchback, Hopper, Video's Revenge)			
PLAY IT AGAIN SAM 7	C	9.95	6.95
(Firetrack, Snapper, Bone Cruncher, Ghouls)			
PLAY IT AGAIN SAM 8	C	9.95	6.95
(Winter Olympiad '88, Quest, Around the World, Mr Wiz)			
PLAY IT AGAIN SAM 9		9.95	6.95
(Camelot, Steve Davis Snooker, Spycat, Life of Repton)			
PLAY IT AGAIN SAM 10		9.95	6.95
(Zalaga, Qwak, 3d Dotty, Repton Thru Time)			
PLUS 3 GAMES	D	9.95	4.95
(Planetoid, Firebug, Maze)			
SUPERIOR COLLECTION 3	C	9.95	6.95
(Syncron, Repton, Repton 2, Karate Combat, Deathstar, Mr Wiz, Smash & Grab, Overdrive)			

RECENT RELEASES AT SPECIAL PRICES

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Exile	12.95	8.95
Life of Repton	6.95	5.25
Pipeline	9.95	6.95
Quest	9.95	6.95
Repton Infinity	12.95	8.95
Repton Thru Time	6.95	5.25
Spy Cat	9.95	6.95
Superman	9.95	6.95
Tank Attack	12.99	8.95
The Last Ninja	9.95	6.95
Blood of the Mutineers	12.95	8.95
3D Pool	9.99	6.95

SPORT

TITLE	F	RRP	SALE
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Commonwealth Games		7.95	6.95
G. Gooch Test Cricket	C	9.95	6.95
Goal!	C	7.95	6.95
Ian Botham Cricket	C	7.95	6.95
Indoor Sports	C	9.95	6.95
Winter Olympiad '88	C	9.95	6.95
Winter Olympics	C	6.95	5.25

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GRAPHICS Part of the spreadsheet section, it lets you draw bar charts, pie charts & histograms to give a graphic presentation of your statistics. Helps to give life & colour to the dullest figures!

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Join the space race

Jump on your jetbike in Lyn Davies' fast arcade adventure game and map an alien city

IN this fast-paced machine code arcade game set in the distant future you take the role of intrepid space explorer Jim Bains. You arrive at a previously undiscovered planet in a far off solar system desperately short of fuel. Fortunately, you discover an ancient, deserted alien city and decide to explore it in the hope of finding fuel.

You don your spacesuit, climb aboard your jetbike and swoop down to the heart of the city. Luckily, scattered around are valuable fuel canisters – which must be collected in order to refuel your ship.

Teleports are handy for moving between the different buildings, but take care, as it is very easy to lose your way. Robots – fortunately, no longer active – block the way in several locations. They can be disintegrated by running into them after first collecting a power pod.

Take care you can only carry one power pod at a time. If you try to pick up a second one it will explode, ending one of your three lives.

All the action takes place in a window in the centre of the screen which shows a small portion of the current location. You can fly left and right using the Z and X keys. The teleports – represented by an arrow-shaped object – are activated by flying past while holding down the * or ? keys.

There are several blind alleys from which there is no escape. If you end up in one press the B key to be transported back to the beginning. You will, however, lose one of your three lives.

The number of fuel canisters still to be collected is shown on the left-hand side of the screen.

```
   10 REM Jetbike
   20 REM By L.C.Davies
   30 REM (c) Electron User
   40 IF PAGE>&E00 GOTO 1480
   50 MODE5:DIM code 3500:VDU19,3
,6;0;:ENVELOPE1,129,-10,-5,-3,10,
10,10,126,0,0,-126,126,126:ENVELO
PE2,129,10,5,3,10,10,10,126,0,0,-
126,126,126:v=&FFEE:VDU23,1,0;0;0
;0;
   60 VDU23,224,255,254,128,128,1
28,132,132,132,23,225,132,132,156
,188,128,128,128,0,23,226,0,1,1,1
,61,57,33,33,23,227,33,33,33,1,1,
1,127,255,23,228,0,15,15,15,15,15
,15,0
   70 PROCdraw:PROCcode:CALLein:E
ND
   80 DEFPROCdraw:VDU19,1,0;0;:VD
U19,2,0;0;:VDU19,5,0;0;:COLOUR129
:CLS:VDU5:FORF=96TO1024STEP64:FOR
E=128TO1200STEP64:MOVEE,F:GCOL3,3
:VDU224,10,8,225:GCOL3,1:VDU8,11,
226,8,10,227:NEXTE:NEXTF
   90 GCOL0,0:MOVE432,760:DRAW932
,760:PLOT85,932,660:MOVE932,660:D
RAW432,760:PLOT85,432,660:MOVE288
,340:DRAW288,536:PLOT85,1088,536:
MOVE288,340:DRAW1088,340:PLOT85,1
088,536
  100 GCOL0,1:MOVE400,800:DRAW900
,800:PLOT85,900,700:MOVE900,700:D
RAW400,800:PLOT85,400,700:GCOL0,2
:MOVE400,700:DRAW400,800:DRAW900,
800:GCOL0,0:DRAW900,700:DRAW400,7
00:GCOL0,0:MOVE434,758:PRINT"JETB
IKE":GCOL0,2:MOVE428,764:PRINT"JE
TBIKE"
  110 GCOL0,1:MOVE256,384:DRAW256
,576:PLOT85,1056,576:MOVE256,384:
DRAW1056,384:PLOT85,1056,576:GCOL
0,2:MOVE256,384:DRAW256,576:DRAW1
056,576:GCOL0,0:DRAW1056,384:DRAW
256,384:VDU19,1,1;0;:VDU19,2,3;0;
:VDU19,3,6;0;:ENDPROC
  120 DEFPROCcode
  130 FORpass=0TO2STEP2
  140  P%=code
  150 [OPTpass
  160 .ldal:EQUD&70077733:EQUD&83
37707:EQUD&3B3B3B3B:EQUD&3B3B2A19
:EQUD&70F0C3B:EQUD&7900700:EQUD&C
C88:EQUD&1CCCC00:EQUD&EE014545:EQ
UD&EE8901EE:EQUD&F0E11FF:EQUD&F90
0F00:EQUD0:EQUD&C000000:EQUD&F0B4
10A:EQUD&B0F0F00
  170 EQUD&68ACD45:EQUD&E900E00:E
QUD0:EQUD&C000000:EQUD&F0B410A:EQ
UD&B0F0F00:EQUD&68ACD45:EQUD&E900
E00
  180 .rdal:EQUD0:EQUD&3000000:EQ
UD&F0D2805:EQUD&D0FDF00:EQUD&6153
322:EQUD&7900700:EQUD&3311:EQUD&8
333300:EQUD&77082A2A:EQUD&7719087
7:EQUD&F0788FF:EQUD&F900F00
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00EE:EQUD&CCCCCCCC:EQUD&CCCCCCCC:
EQUD&CCCCCCCC:EQUD&CCCCCCCC:EQUD&
EE00CCCC:EQUD&FFFF00EE:RTS
  220 .arl:EQUD0:EQUD&31311110:EQ
UD&F7F77373:EQUD&31300087:EQUD&31
313131:EQUD&F0000331:EQUD&7373F7F
7:EQUD&1103131:RTS
  230 .arr:EQUD0:EQUD&8C8CD880:EQ
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8C8C:EQUD&C3000C0C:EQUD&8ECECFCF:
EQUD&80800C0C:RTS
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110:EQUD&430007:EQUD&43000FF0:EQU
D&FF00043:EQUD&61006100:EQUD&1210
007
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F0F000E:EQUD&E000E00:EQUD&80C000E
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UD&32100:EQUD&C4800321:EQUD&F7F7F
6E6:EQUD&90C5E6F7
  270 .pbt:EQUD&FF00EF:EQUD&FF000
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UD&393931:EQUD&E000F0F:EQUD&FFFFF
110:EQUD&800F00EE
  280 .pb:EQUD&E0008:EQUD&E000FF0
:EQUD&F000800:EQUD&FFFFE001:EQUD&
33B999DD:EQUD&CDE66673:EQUD&78B88
```

CONTROLS

Z	Left
X	Right
*	Teleport up
?	Teleport down
B	Teleport back to beginning

```
CD:EQUD&301C0C06
  290 .hgs:EQUD0:EQUD0:EQUD&70003
010:EQUD&F0F00:EQUD&10300070:EQUD
&617000:EQUD&30303030:EQUD&770002
1
  300 .sgh:EQUD0:EQUD0:EQUD&E600C
C88:EQUD&F0F00:EQUD&88CC00E6:EQUD
&E8600:EQUD&C0C0C0C:EQUD&E86000C
  310 .blo:EQUD&7700033:EQUD&3333
3300:EQUD&7700033:EQUD&33333300:E
QUD&7700033:EQUD&33333300:EQUD&77
00033:EQUD&33333300
  320 .blt:EQUD&EE0008C:EQUD&8C8C
8C00:EQUD&EE0008C:EQUD&8C8C8C00:E
QUD&EE0008C:EQUD&8C8C8C00:EQUD&EE
0008C:EQUD&8C8C8C00
  330 .one:EQUD&4040404:EQUD&4040
404:EQUD&3030303:EQUD&3030303:EQU
D&2010303:EQUD&3030303:EQUD&20102
01:EQUD&3030303:EQUD&1030303:EQUD
&7030302:EQUD&3030308:EQUD&201020
1:EQUD&3060503:EQUD&4040303
  340 EQUD&5030404:EQUD&3030306:E
QUD&3020103:EQUD&3030807:EQUD&201
0201:EQUD&4040303:EQUD&4040404:EQ
UD&4040404:EQUD&3040404:EQUD&3030
303:EQUD&3030807:EQUD&3020103:EQU
D&3030605:EQUD&4040404:EQUD&40404
04:RTS
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3030303:EQUD&3080703:EQUD&3030303
:EQUD&3020103:EQUD&2010303:EQUD&3
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D&4040404:RTS
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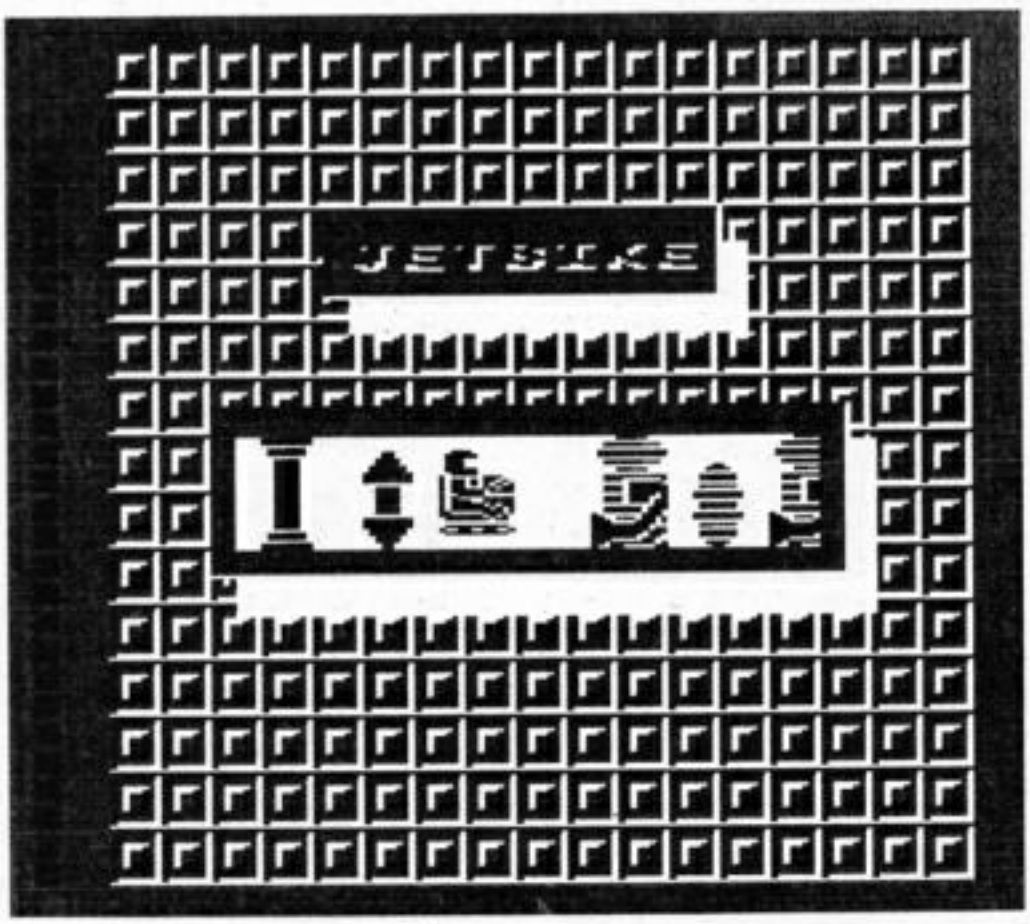
D&4040404:RTS
```

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404:EQUD&3030303:EQUD&3030605:EQU
D&3030201:EQUD&3030807
  460 EQUD&30B0A09:EQUD&B0A0903:E
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0503:EQUD&B0A0903:EQUD&3060503:EQ
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303:EQUD&3030807:EQUD&4030605:EQU
D&3040404:EQUD&3030303
  480 EQUD&3030F0E:EQUD&3030303:E
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D&4040404:RTS
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1C00:EQUD&FF002938:EQUD&D1C00:EQU
D&FF002938:EQUD&D1C00:EQUD&FF0029
38:EQUD&D1C00:RTS
  500 .dalek:LDA&70:STA&72:LDA&71
:STA&73
  510 LDX#0:LDY#0
  520 .back:LDAldal,X:STA(&72),Y:
JSRtest:INY:INX:CPY#&18:BNEback
  530 LDA&70:CLC:ADC#&8:STA&72:LD
A&71:ADC#0:STA&73:LDY#0
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Rtest:INY:INX:CPY#&18:BNEqw
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:STA&7B:STA&78:STA&76:JSRjtbk:RTS
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:STA&73:LDX#0:LDY#0
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JSRtest:INY:INX:CPY#&18:BNEkcab
  610 LDA&70:CLC:ADC#8:STA&72:LDA
&71:ADC#0:STA&73:LDY#0
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  630 LDA&70:CLC:ADC#&10:STA&72:L
DA&71:ADC#0:STA&73:LDY#0
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```

◀ From Page 9

```
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  860 .mid:LDA(&7C),Y:STA&902:RTS
  870 .high:LDA(&7C),Y:STA&901:RT
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  880 .hack:LDA&904:CMP#1:BEQblit
z:RTS
  890 .poo:JSRnie:RTS
  900 .blitz:LDY#12:LDA#3:STA(&7C
),Y:INY:LDA#3:STA(&7C),Y:INY:LDA#
3:STA(&7C),Y:LDA#0:STA&904:JSRwht
:JSRprint:RTS
  910 .get:LDA#1:STA&904:LDY#12:L
DA#3:STA(&7C),Y:INY:LDA#3:STA(&7C
),Y:JSRprint:JSRzno:RTS
  920 .if:LDA&904:BEQget:BNEpoo:R
TS
  930 .zap:LDY#12:LDA#3:STA(&7C),
Y:INY:LDA#3:STA(&7C),Y:JSRprint:J
SRpod:RTS
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:CMP#&C:BEQif:CMP#09:BEQhack:CMP#
4:BNEight:RTS
  950 .ight:JSRinc:LDA#1:STA&903:
JSRprint:RTS
  960 .inc:LDX&7F:INX:STX&7F:LDA&
7C:CLC:ADC#1:STA&7C:LDA&7D:ADC#0:
STA&7D:RTS
  970 .zap:LDY#12:LDA#3:STA(&7C),
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SRpod:RTS
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SRb:JMPloop:RTS
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FFF4:BCSright:RTS
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JSRprint:RTS
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 1030 .boo:JSRnie:RTS
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CMP#&D:BEQfi:CMP#&B:BEQkcah:CMP#4
:BNEeft:RTS
 1070 .eft:JSRdec:LDA#2:STA&903:J
SRprint:RTS
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7C:SEC:SBC#1:STA&7C:LDA&7D:SBC#0:
STA&7D:RTS
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FFF4:BCSleft:RTS
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DA&7C:SEC:SBC#117:STA&7C:LDA&7D:S
BC#0:STA&7D:RTS
 1200 .alf:LDA#1:STA&7E:JMPprint:
RTS
 1210 .pod:JSRonz:JSRmrk:INC&905:
LDA&905:CMP#30:BEQoot:RTS
 1220 .oot:LDA#0:STA&907:.fp:JSRr
ed:JSRsync:JSRwht:JSRsync:JSRsync
:INC&907:LDA&907:CMP#&10:BNEfp:JS
Rscroll:JSResc:RTS
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.dx:LDA#10:JSRv:JSRsync:JSRsync:I
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:JSRv:RTS
 1240 .llorcs:LDA#4:JSRv:LDA&908:
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JSRv:RTS
 1250 .sync:LDA#&13:JSR&FFF4:RTS
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:LDA#5:JSRv:LDA#0:JSRv:JSRv:JSRv:
JSRnoir:JSRzon:RTS
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:LDA#3:JSRv:LDA#0:JSRv:JSRv:JSRv:
JSRnoir:JSRnoz:RTS
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:BEQcse:JSRgo:JSRprint:JSRloop:RT
S
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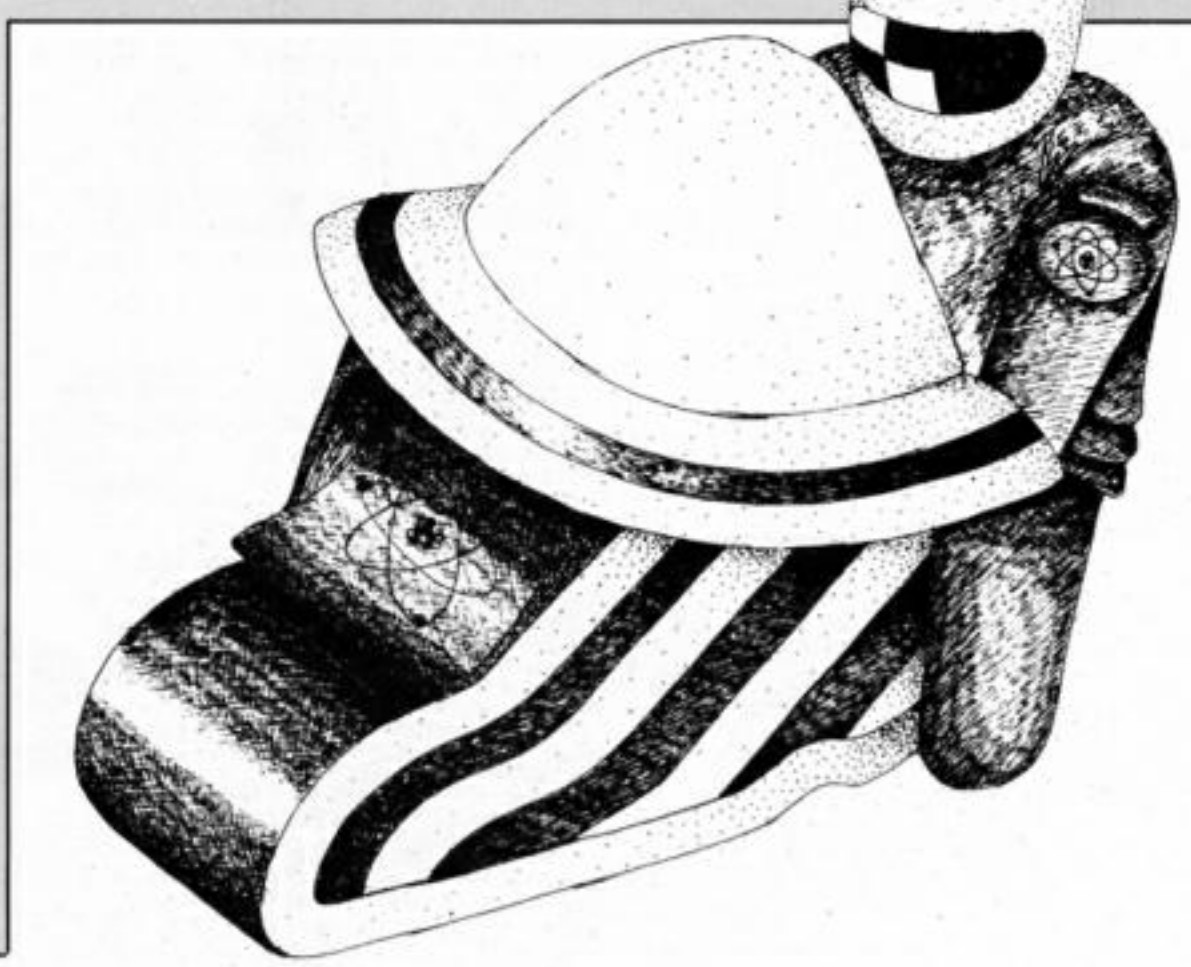
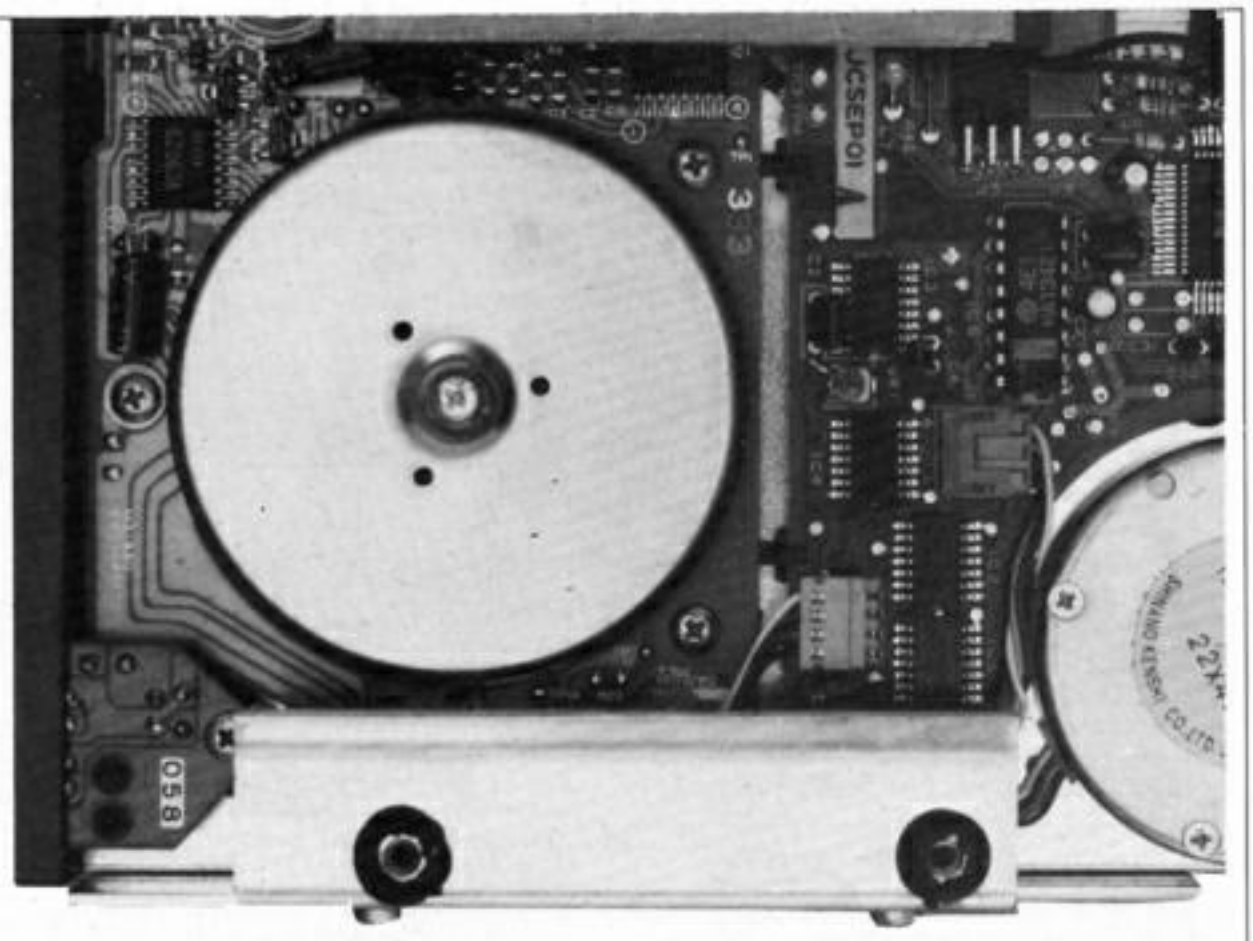
ht:JSRsync:JSRsync:INC&907:LDA&90
7:CMP#&10:BNEpf:JSRllorcs:JSResc:
RTS
 1440 .esc:BRK:RTS
 1450 ]
 1460 NEXTpass
 1470 ENDPROC
 1480 REM Downloader
 1490 *KEY0 *T.|MD%=PAGE-&E00:FOR
 I%=PAGE TO TOP STEP4:!(I%-D%)=!I
%:NEXT:PAGE=&E00|MOLD|MRUN|M
 1500 *FX138,0,128
```





Cracking those cryptic codes

In the final article in his floppy disc series Roland Waddilove lists the DFS error messages

BOTH discs and drives are, on the whole, very reliable. However, occasionally disc errors do crop up when you are trying to catalogue a disc, save or load a program. The error messages displayed by the disc filing system are frequently cryptic and quite meaningless.

Take, for instance, the following error message produced when cataloguing a disc:

```
Disk fault 18 at 00/00
```

A fat lot of good that is. What it should say is: *Sector not found, you are attempting to read from or write to an unformatted disc.* Unfortunately, there wasn't enough room in the DFS rom to incorporate these more explanatory error messages, so we're stuck with the abreviated error codes.

This month, in the final article in the series, I'll go through these error codes and explain their true meaning so should the worst happen, you will be able to look up what the error was and set about correcting it. The solution to the example error above, of course, is simply to format the disc.

Making sense

Only the disc controller error numbers are ever displayed on screen. Here is what they mean:

&00: No errors

This indicates that the last disc operation went smoothly without any hiccups.

&08: Clock error

The disc controller found a clock bit to be missing when reading data from the disc. There are several causes, such as leaving the disc by a magnet – the monitor and power supply contain them – and partially wiping a sector, or simply using poor quality discs. It pays to buy only the best when valuable data is at stake.

You can sometimes cure this fault by reading the sector and then writing it back again using a disc sector editor. If this fails, copy all your files to another disc and then reformat the offending one. Test it before trusting it with valuable data.

Although very unlikely, it is possible that you have a drive fault which requires the attention of a qualified engineer.

&0C: Sector ID error

During the formatting procedure a two-byte cyclic redundancy checksum (CRC) is calculated for each sector ID and stored on the disc.

Each time a sector is read from the disc it is calculated again and compared with the original. If they don't match then an error has occurred.

The reasons for this error and the cure are the same as for error &08.

&0E: Data CRC error

When you write data to a sector – say, when saving a program – a CRC is calculated for the data and stored alongside it. When the data is read from the sector the CRC is again calculated and, of course, should match the original precisely. If it doesn't, then you've got problems. The reasons and cure are as before.

&10: Drive not ready

Either your drive isn't switched on, you haven't inserted a disc or the selected drive doesn't exist. If the drive is connected and switched on it may not be up to the correct operating speed – you'll need to consider factors like this when accessing the disc controller directly from machine code.

&12: Write protect

You've left the write protect sticker on! Take it off and try writing to the disc again.

&14: Track zero not found

Cross your fingers and hope that you never get this one, as the most likely cause is a hardware fault. The disc controller has tried to seek (go) to track zero. The read/write head moves outwards until a microswitch is activated telling it to stop. When this error occurs the microswitch fails to tell the read/write head to stop. You may need a new switch.

&16: Write fault

Like the last error, this indicates a hardware fault. Check all the cables and connectors.

&18: Sector not found

This is the most common disc fault and has a number of causes. It means that a particular sector ID can't be found. You could be trying to read an 80 track disc in a 40 track drive – or vice versa. The disc might be unformatted, or if you are trying to back up a commercial game, the disc could well have a non-standard format making it impossible to copy.

With switchable 40/80 track drives try flicking the switch the other way round. Try cataloguing the disc and format it if it is not already formatted.

Note that you can always catalogue an 80 track disc in a 40 track drive and vice versa, so it will look quite normal until you come to read or write to it. Try *DRIVE 0 40 if you have an 80 track non-switchable drive. You can then read from a 40 track disc, but unfortunately, you still can't write to it.

Basic errors

The remaining errors are slightly different as they are produced at a higher operating level. They can be obtained by typing a command from the keyboard or from within a Basic program. This time the error numbers are not displayed, just the brief accompanying messages. Here are more complete descriptions:

Turn to Page 12 ▶

◀ *From Page 11*

&FC: Bad address

The address in a *LOAD or *SAVE command doesn't make sense.

&CF: Bad attribute

You have used *ACCESS incorrectly.

&FE: Bad command

The star command you typed – or that is in your program – was not recognised and a file of the same name couldn't be found on the disc.

&CE: Bad dir

The directory name entered isn't allowed.

&CD: Bad drive

Only drive numbers zero to three are acceptable. Check what you entered.

&CC: Bad filename

Check the filename in the SAVE/LOAD/OPEN command. Only seven letters are allowed.

&CB: Bad option

Only *OPT1,0, *OPT1,1, *OPT4,0, *OPT4,1, *OPT4,2 and *OPT4,3 is acceptable.

&BF: Can't extend

The DFS requires 16k when opening a file. If you write more than 16k another 16k block is allocated to the file. If this isn't possible – for instance, if another program has been saved immediately after the file – then a *Can't extend* error message is displayed.

&BE: Cat full

You can only save 31 files on a disc. When you try to save the thirty second you'll get this message.

&C8: Disc changed

This can occur if you open a file then change discs and try to write to the file.

&C3: File locked

You can't delete or overwrite a locked file. First unlock it.

&C6: Disc full

There is no more room on the disc to save the program or open the file. You may be able to continue after using *COMPACT to collect all the free spaces into one continuous block.

&C9: Disc read only

The disc is write protected. Remove the write protect label.

&C5: Drive fault

A general drive error.

&DE: EOF

You have read all the information in the file and there is no more to BGET# or INPUT#.

&C4: File exists

You tried to rename a file, but one with that name already exists. You can't have two files with the same name.

&C7: Disc fault

A general disc error.

&D6: File not found

The file you tried to access couldn't be found.

&C2: File open

You can't delete or open a file that has been already opened. You must first close it.

&C1: Read only

You have tried to write to a file that you have opened for input only.

&C0: Too many open

You have tried to open more than five files. This is not permitted.

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EU7

ladder adder

This fun educational game by Steve Bissell can help improve a child's mental arithmetic

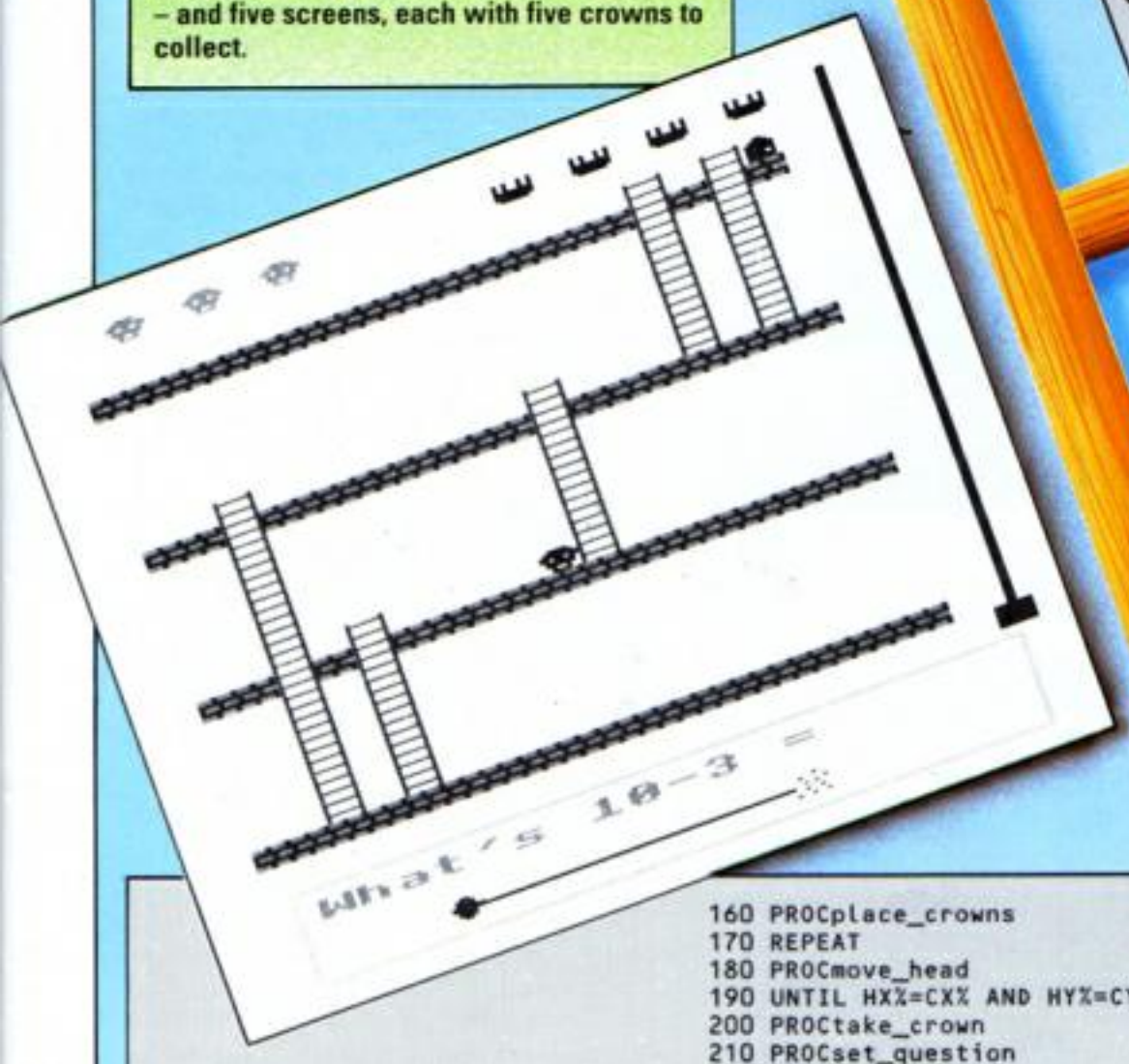
ALTHOUGH Ladder Adder is based on the arcade ladders and levels theme, the emphasis is on education. Four brick levels are drawn on the screen, each connected by a ladder.

You start at the bottom left corner of the screen and a golden crown is placed at a random position on one of the levels. Using the Z, X, * and ? keys you must climb ladders, run along levels and collect the crown.

Once you have it you'll be asked a simple arithmetic question and have to answer it before the fuse of a bomb burns down and it explodes. Answer correctly and the crown will be placed on a pole on the right-hand side of the screen and the bomb will be defused. Answer incorrectly and the bomb will explode and bang goes one of your four lives.

When you have collected five crowns you go via the door at the top right-hand corner of the screen to the next screen which features more difficult questions.

There are three levels of difficulty – selectable from the title and instructions screen – and five screens, each with five crowns to collect.




```
 10 REM Ladder Adder
 20 REM By Steve Bissell
 30 REM (c) Electron User
 40 IF PAGE>&1100 GOTO 1660
 50 *FX213,50
 60 *FX214,1
 70 *FX211,0
 80 MODE 1:*FX 9,5
 90 PROCinst:*FX 10,5
100 MODE 2:*FX16
110 PROCinit
120 REPEAT
130 REPEAT
140 PROCscreen
150 REPEAT
160 PROCplace_crowns
170 REPEAT
180 PROCmove_head
190 UNTIL HX%=CX% AND HY%=CY%
200 PROCtake_crown
210 PROCset_question
220 PROCcheck_score
230 UNTIL crowns>4 OR lives<1
240 IF crowns>4 AND lives>0 PRO
Cexit
250 UNTIL level>4 OR lives<1
260 PROCgame_over
270 UNTIL INKEY-86
280 MODE 6:COLOUR 3:END
290 DEFPROCinst
300 VDU 23,1,0;0;0;0:CLS
310 COLOUR 129:COLOUR 2:PRINTTA
B(13,0)STRING$(14," ")TAB(13,1)"
LADDER ADDER "TAB(13,2)STRING$(14
," ")
320 COLOUR 128:COLOUR 3:PRINTTA
B(0,5)"The object of the game, is
 to collect  all the crowns, and
 answer each of the  sums, before
 the fuse burns down and  explo
des the bomb."
330 COLOUR 1:PRINTTAB(0,10)"You
 start with 3 lives and have 5 st
agesto complete."
340 COLOUR 2:PRINTTAB(0,13)"The
 game becomes progressively harde
r  after each stage, with the fu
se burning faster, and the numeri
c range of the  sums increasing
."
350 COLOUR 3:PRINTTAB(0,18)"The
re are 3 initial difficulty level
s  for you to choose from, makin
g the game suitable for children
of all ages."
360 COLOUR 130:COLOUR 1:PRINTTA
```

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GOLDEN electron user GAME

Alien violence

Product: Predator
Price: £9.95 (tape)
Supplier: Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX
Tel: 0532 459453

THE Predator in the title isn't the beefy Arnold Schwarzenegger – he's the bait. The plot, which is taken directly from the film of the same name, involves an alien creature which is hunting Arnold and his pals and killing them in most unpleasant ways. The climax of the film involves our hero surviving an explosion which even three yards of lead shielding would object to.

Basically this is a sideways scrolling shoot-'em-up with you controlling Schwarzenegger in the starring role. Our hero moves from left to right past parallax scrolling scenery – the bushes in the foreground move faster than the trees further away. Shoot the enemy soldiers coming at you from all directions, and even popping up from camouflaged holes in the ground.

The basic controls are standard Z or X for left and right plus * to jump and ? to crouch. Holding down the direction controls and pressing * or ? moves Arnie diagonally up and down the screen. Pressing Return fires his gun either forwards or diagonally, again dependent on the up and down keys. This gives a great deal of control over what is, essentially, a simple game.

There is also the option to drop the gun you're using and pick up a new one, but so far I've not come across one that's loaded. If you're not carrying a gun you can resort to punches and kicks, but it's not very effective against half a dozen gun-slinging soldiers charging at you.

Your final weapon is the grenade, of which you have three. You have to be very accurate when lobbing them, and in the thick of the action it's not worth the time or effort.

The enemy soldiers are quite stupid and just as well you've got three. Assuming you avoid these pitfalls you'll be able to use the energy bottles which are scattered about to recharge yourself.

Keep an eye open for soldiers hidden in trenches

Storming action

Product: Stormcycle
Price: £1.99 (tape)
Supplier: Atlantis Software, 28 Station Road, London SE25 5AG.
Tel: 01-771 8642

STORMCYCLE is an arcade adventure in which you must find five light-refracting diodes which are urgently needed to complete a souped-up laser to protect the Earth from a meteor storm unleashed by aliens.

You wander around the garden outside your house where all the diodes must be collected and deposited but quickly discover that you are not alone. Strange beings drive vehicles along the ground and overhead and contact with them saps your energy. Flying devils also drop bombs which have a similar effect. Your trusty sword will need to be constantly at the ready or your strength will soon waste away.

Your worst hazards are the pits. Fall into them and a whole life is instantly lost – it's

Movement between the various sections of the game – garden, forest, moon, cellar and castle – is by means of transporters which look like fat little pharaohs and each will take you to a different area. Some lead to dead ends where your only option is to use the suicide key. One of your first tasks will be to discover which transporters are useful.

The diodes can be spotted without difficulty, but this doesn't mean they're easy to get at. It takes a bit of practice to become proficient at collecting some of them and one even requires a jump into empty space where you vanish behind the title bar at the top of the screen. There's a bug here – if you jump you can reappear temporarily at the bottom of the title screen.

One other possible bug – or is it a feature? – is that on one screen you can become walled up in the castle. If this happens it is fatal, but you can easily avoid this fate as there is no need to visit that location.

Stormcycle is a good game, though not in the same league as Superior's Citadel, so ordinary mortals like me can complete it and read the congratulations screen.

The graphics are suitable for a budget

you have actually to get in their way for them to shoot you. And – at long last in an arcade game – if they do get in each other's way their bullets have a similar effect on their pals. I've been waiting a long time for a game that does that.

The soldiers that pop out of the ground, fire and then duck down again must be in trenches, but as long as you hit the right area of ground you can knock them out even if they are not visible.

However, the killer geese that fly across from time to time are more lethal. Of the three or four groups that appear on the first level most can be dodged, while one or two can be ducked – no pun intended.

At intervals the screen turns blue and the sights of the alien's weapon slowly move across the jungle scene towards you. If you are hit you're dead. There is a way to escape, but I'll leave you to discover it.

The graphics are effective given the limitations of the four-colour Mode 5 screen. Apart from a preponderance of green – what do you expect in the jungle? – everything was clearly outlined and looked good. Not only that, but when our hero was hiding behind a bush or running behind a foreground mesh you still see him through the gaps.

There isn't much sound – gun shots, ones to indicate Scharzenegger has been hit plus one for the alien and an end of game tune that really wasn't worth the effort. However, as this was a pre-release version it may improve.

This is a fun game having a lot of the feel of a Schwarzenegger film – loadsa violence – and the fact that this is another Peter Scott work, coming hard on the heels of Barbarian II, guarantees that it's as good a rendition on the Electron as could be achieved.

Lazarus

The killer geese are not a major problem

Sound	5
Graphics	9
Playability	9
Value for money	9
Overall	9

SecondOpinion

Another cracking game from the Superior stable, and infinitely preferable to the old re-releases on the Sam compilations.

The sideways scrolling is smoothly executed and the graphics are well defined. It's addictive and fun, so get your combat gear on and save the human race from that alien predator.

Janice Murray

game, the animation is fast and it has sensible features like sound on/off and pause. In fact, Stormcycle makes an ideal starter for arcade adventuring.

Rog Frost

Sound	7
Graphics	8
Playability	9
Value for money	10
Overall	9

SecondOpinion

Stormcycle is an excellent budget title that will provide hours of fun. An arcade adventure in the style of Citadel and Palace of Magic, the major part of the game involves searching and mapping.

You won't go far wrong investing your pocket money here.

Janice Murray

Product: Play it again Sam 8
Price: £9.95 (tape)
Supplier: Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX.
Tel: 0532 459453

Sam plays doggedly on

GOOD old Sam is playing it for the eighth time on Superior Software's latest arcade game compilation. The first of the four titles is Tynesoft's blockbuster, **Winter Olympiad '88**, which was a big hit when it was released for the Electron last year.

It's a strange game to include in a compilation, because it comprises six events – separate games – in itself. A maximum of four players can take part, or the micro can control up to three opponents, the object being to win as many medals as possible.

In each of the winter sport simulations you take part in three heats with your best result being compared against those of the other three competitors.

In Bob Sled you drive a two-man sled down a twisting course. The faster you speed through the bends, the further up the side of the run your sled is forced and, if you don't use your brakes enough, you're in for a tumble. If you go to the other extreme and use the brakes too much your time will be slow. A bird's-eye-view of the course, showing your current position on it, is displayed in a window on the right of the screen.

Next event is Speed Skating where you provide the energy to drive your skater round a large rink by hitting two keys alternately to make him pick up speed. Unlike other key-hitting exercises, timing is just as important as speed. If you've got a good sense of rhythm you'll easily win this one.

Ski Jump brings out the Eddie the Eagle in you. The event starts off with a rear view of your man waiting at the top of the hill. Once the tone indicates it is time to start your jump, hit Z and X alternately to get up a good speed. Once that is achieved a side-on view of the jump is displayed and you continue hammering the keys to increase speed.

Finally, there is a close-up view of your jumper as he leaps from the end of the ramp and flies gracefully through the air. Using the C and F keys you must keep his skis aligned in order to gain style points and be rewarded with a perfect landing, otherwise it's an ignominious rear-ender.

The Giant Slalom gives a 3D diagonal view of a skier speeding downhill, and you use Z and X to make him weave in and out of suspended poles. It's not too taxing but I've never managed a clear descent.

For me Ski Slalom is one of the better events. You're given a view from behind the skier and as he descends the mountain you guide him between pairs of poles. Sounds easy? Well, some of them are off the screen and an arrow shows which way you must head.

The best is saved until last. Biathlon is a fascinating sport involving long distance skiing interspersed with rifle marksmanship. Moving your skier between target ranges involves rhythmic key pounding. If you get out of synchronisation you rapidly lose momentum.

The shooting is simple, the cassette interface relay clicks to indicate the rifle being cocked – a neat trick – then a cross descends from the top of the target down through its middle. You hit the spacebar at the right moment to score a bull. Failing to hit the target centrally results in a time penalty. There are five targets to hit in each group.

In all but two events – Bob Sled and Ski Jump – you can abort the second and/or third heats. After each event is completed, the medals are awarded and a medals league table is displayed before you go on.

The graphics in all six events are excellent. They move smoothly and are usually accompanied by simple but effective sound effects. Between events you are treated to a fairly pleasant version of the theme music to the BBC Television programme Ski Sunday.

The second full game in the Sam 8 collection is **Quest**, an arcade adventure following in the footsteps of Palace of Magic. You guide the hero, Walter Cobra, around a maze of rooms looking for 12 power crystals and the Golden Dragon. Your most useful item of equipment is a pair of jet boots which are automatically activated in rooms with triangular objects in them, allowing you to fly across the screen.

Other complications involve force fields and their power plants which need to be deactivated with stun grenades, and computer terminals which have messages that can only be accessed if you have the correct password. If you like tough

Quest is a tough arcade adventure

Taking a tumble on the Two Man Bob in Winter Olympiad '88

adventures this is one for you.

If you don't know who Repton is by now, where have you been? In **Around the World in 40 Screens** you have to guide our little green friend around Africa, across the Arctic, America, the Orient and beneath the oceans.

Having wandered around these screens a little in the past I know they're competently designed and quite fun. The Oceans in particular has been put together by someone with a devious mind – the safe sprites are invisible. You've got the usual tune, of course, and the quality graphics.

The oldest game in Sam 8 this time is the Superior title **Mr Wiz** which dates back to 1984. The scenario is simple, if a little bizarre. You must guide Mr Wiz around the orchard eating up cherries. Three nasties on the first level appear from beneath a mushroom and give chase. Normally they won't move through the earth, but will do so if they get annoyed.

Annoying them seems easy to do – just eat the cherries, or worse, their mushroom. You are not entirely defenceless, because you do have a crystal ball to throw at them. Overall it's a pleasant, smoothly programmed little game and, while the poor relation to the other block-busters, it doesn't compare too badly.

Sam 8 is a reasonable collection although I've had enough of Repton. As usual if you lack just one of the games it's a good buy – if you're missing two or more it's a bargain.

Llewellyn

Sound	***8***
Graphics	***10***
Playability	***10***
Value for money	***10***
Overall	***10***

SecondOpinion

Sam compilations are superb and can't be bettered for quality of graphics, gameplay or value for money. For newcomers to the Electron scene they must be considered an essential buy, but old hands like myself have seen it all before. Yawn...

Janice Murray

Repton in America in Around the World in 40 Screens

Guiding Mr Wiz round the orchard collecting cherries

One man band

John Wike reveals the history behind Jafa Systems to Tony Leah

SMALL is beautiful may not be the motto of electronics engineer John Wike, but it certainly should be. For the past five years he's made it his personal business to see that Electron users don't go short of add-ons for their machines.

John doesn't just run Jafa Systems, he IS Jafa Systems – the technical brain behind the modest Caerphilly-based outfit that has produced such products as Romplus 144, E2P Second Processor and the Mode 7 Adaptor.

And all this while pursuing a full-time career as a hospital physicist. How does he do it?

When I popped down to Cardiff to find out, it was good to hear that John's peripherals pipeline shows no sign of drying up. He's halfway through another exciting project and expects to have a new item ready for the Electron marketplace in a few months.

This still secret project is only the latest in a long line of innovative 8 bit technology John has devised in his spare time since he first discovered micros while working in Plymouth during the late 1970s.

"Electronics has always been a hobby of mine as well as a profession", John said. "So when micros came along they were really only an extension of the digital electronics, counters and shift registers I'd been playing with, because at that stage it was just machine code stuff.

"The first micro I worked on was a 1k 6502 board; the brand name I think was Kim1. It was very much hand assembly, with a hex keypad and six LED displays, and you programmed with that. Oh, and there was a tape recorder to save the programs. It was very, very basic".

John bought his first Electron early in 1984 when they still cost a staggering £200. "I'd been interested in the BBC Micro because of all the wonderful things it had on it, but it was too expensive for me at the time", recalls John. Lucky for Electron users that John's bank balance wasn't healthier at the time!

Getting his Electron was easier planned than done. "I remember making dozens of trips into Cardiff asking dealers if they had any Electrons – you just couldn't get one for love or money", said John. "Then one day in February I was walking past a shop window and saw one. I bought it on the spot.

"I was already experienced in doing construction projects for electronics magazines and the Electron looked a good bet from this angle because there wasn't much on the basic machine.

"Then shortly after that the Plus One came out, so I bought one of those. And then in quick succession came the Plus 3 and so I had a disc drive with it as well.

"I'd also had another couple of computers by then – the Z80 Nascom that was a bit more advanced than the Kim1 in that it at least had a proper TV display and keyboard, and the Jupiter Ace, which was a strange one because although it was also Z80 it was Forth".

John designed boards for these machines and had them published in some of the early computer magazines as construction projects, so he set his mind to producing something along those lines for his new Electron. It turned out to be a speech board which he completed in the summer of 1984.

Because of his past experience machine code came quite naturally to him, so he typed in a BBC Micro disassembler program and started disassembling the rom to see what it did.

"When I was able to get hold of the BBC Micro Advanced User Guide – there wasn't an Electron version at the time – it became more obvious what some of the machine code I'd been looking at was doing", said John.

"And in fact when I designed the second processor I did it purely from disassembling the Electron rom and from descriptions in the BBC Micro Advanced User Guide of the osfile and the various other operating system routines.

"You had to obey certain protocols in order to transfer data into the second processor and out again, and I just second guessed these from reading the Advanced User Guide specifications for the rom.

"By that time I had the word processor View and the disc drive, and they were all transferring data properly".

As people bought the second processor and discovered various problems John found he had to make slight modifications to it. "In fact I've found that with all the stuff I've done", he said, "because I'm not in a position to test it out on every product available on the market.

"So when someone comes back to me and reports a problem I sit down and find out what the problem is and then change my product accordingly as the situation demands".

Although he had produced boards for the Jupiter Ace and the Electron – made up by a local company and sold to constructors – it wasn't until the second processor was reviewed in 1986 that John's products started to attract real interest.

Permanent Memory Systems liked what it saw in the reviews and took the second processor on as a commercial product while John continued to sell it in kit form.

The next item from John's product line was the Mode 7 Adaptor – a rom which produces a Mode 2 display simulating the BBC Micro's Mode 7 – released in mid-1977 and well received.

At this point John and his wife Fiona formed Jafa Systems to market their wares.

The Mode 7 Adaptor sold very well and John brought out a kit version "to reduce the immediate cost to people who were inter-

The Jafa Systems stand at last year's Electron & BBC Micro User Show

ested in constructing it and spreading their costs over a period by buying the parts themselves".

Interestingly, when it came out the Mode 7 Adaptor at £89 cost nearly twice as much as the Electron was going for in many places under the heading of obsolete stock. Because of this at the end of last year John decided to produce a £25 simulator including a Mode 7 screen editor program.

"The simulator was a very interesting exercise because I wanted it to tie in with the way my Mode 7 unit works – which was to copy how Mode 7 worked on the BBC Micro", said John. "So it wasn't just a question of producing a simulated Mode 7 screen, it had to be possible to use all the Acorn screen calls and things like operating system write character commands.

"They all had to be tied in with it and it had to be possible to get it to display characters which had been poked directly to the screen, because programs like Wordwise do that, and to get all this working on a simulated Mode 2 display produced some interesting problems.

"I'd had a long time to think about the situation because when I was demonstrating the adaptor at shows last year there were people coming up saying that there was a simulator on the way – so at the back of my mind all the time was a simulator for the Electron, if only to keep up with the opposition when theirs came out. But so far, mine has been the only one!

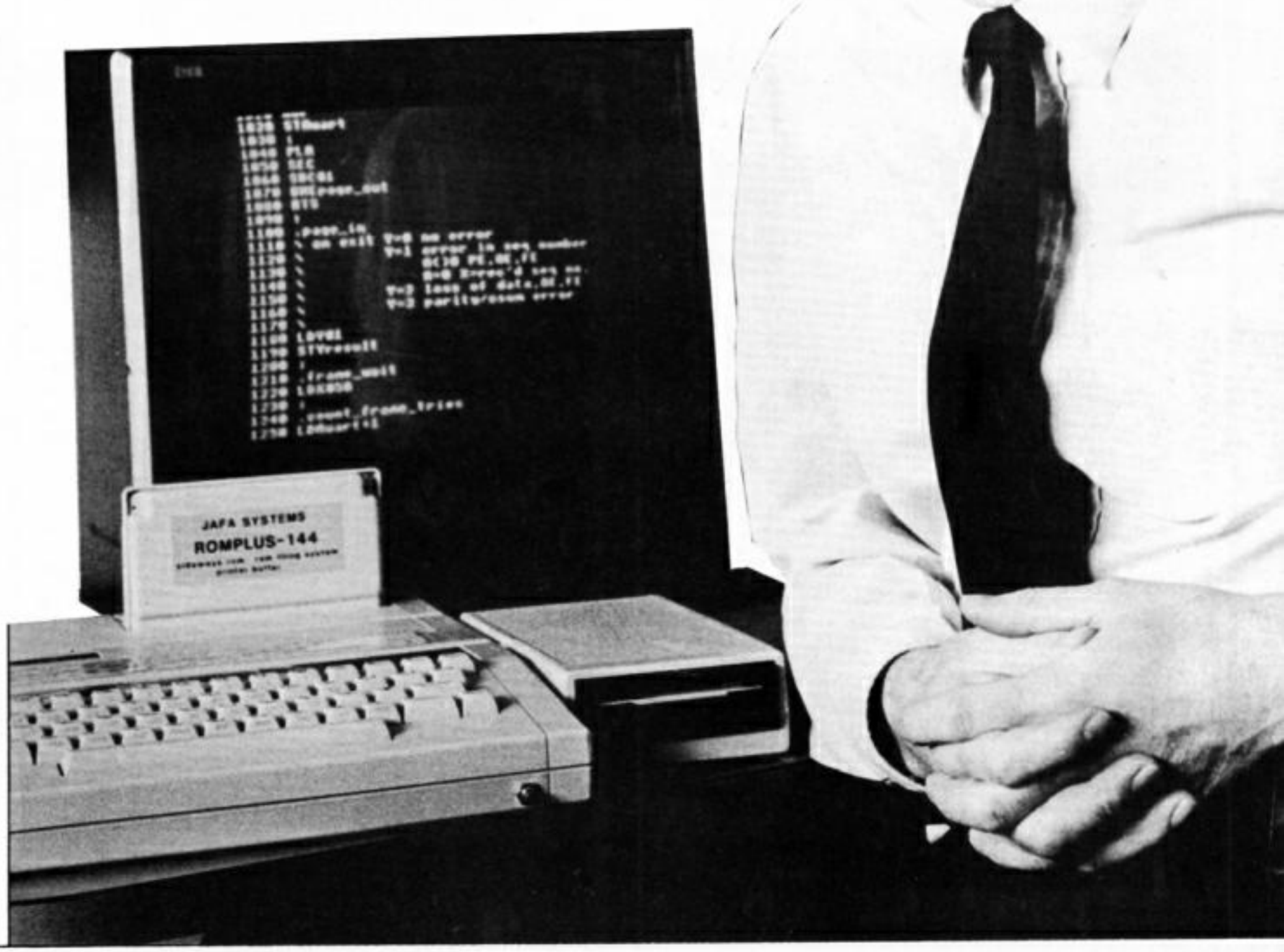
"The adaptor is expensive to make. A firm that depended on making a profit from the product just couldn't do it at our price. It's only because producing such products is a part-time hobby for me that it can be sold at the price it is. It would be out of the question for anyone else to do it".

Also last year came the Romplus 144 sideways rom cartridge, with its nine rom sockets. It too, has been successful.

Does he ever think the time may come when he will go into full-time computer add-ons design? "I haven't even thought about it", says John.

"All I can say is that all my products have given me a lot of pleasure. Each one was a problem solving exercise – but then all programming is, so there's nothing special about that I suppose".

John Wike, brains behind Electron add-on maker Jafa Systems.



Write your own arcade smashes using the

ARCADE GAME *Creator*

Arcade Game Creator is a suite of programs for the Electron and BBC Micros. Taken from the pages of *Electron User,* it lets you into the secrets of writing fast-action arcade games, and provides you with a number of utilities to make design and programming easier.

Among the programs are:

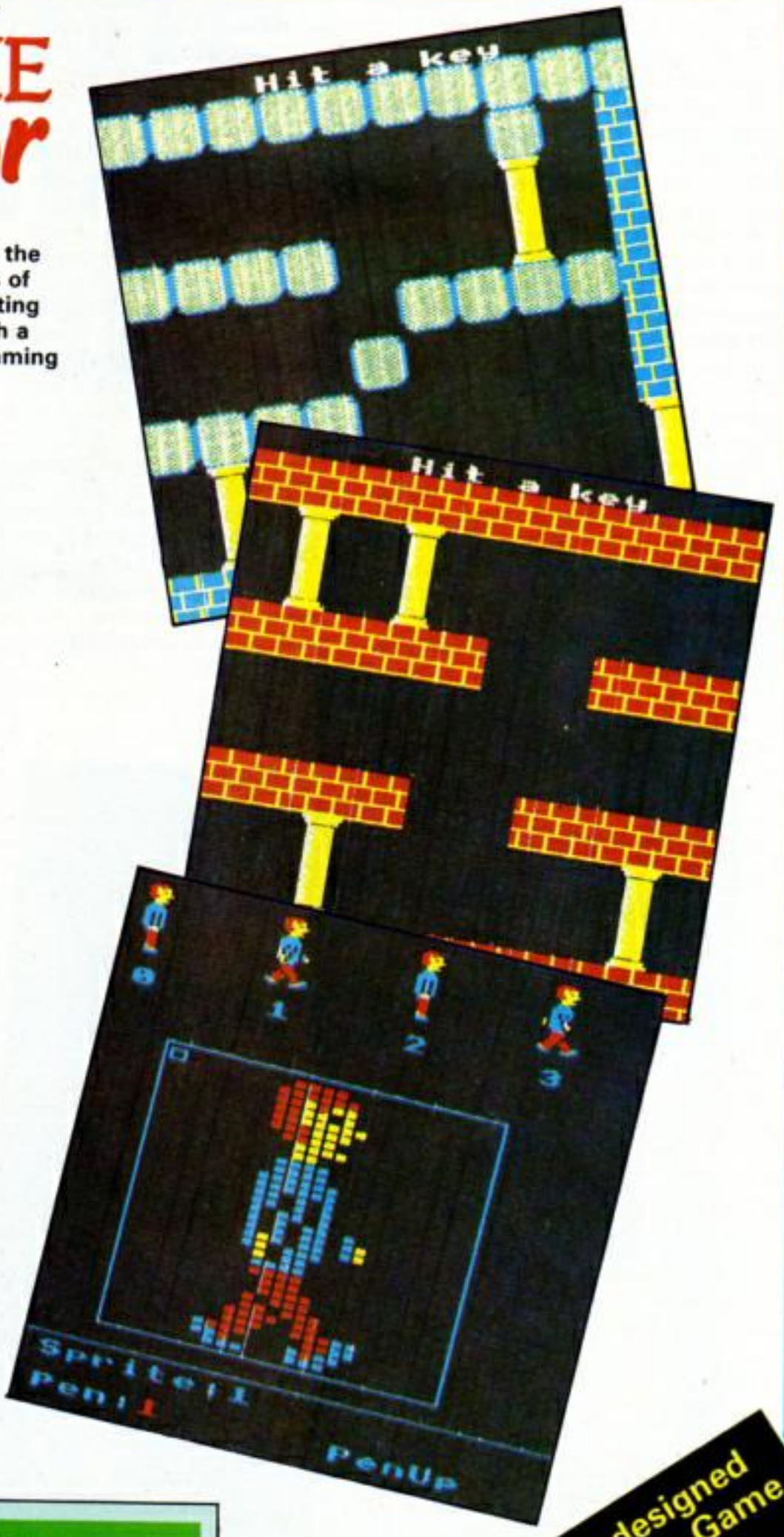
- A Mode 5 sprite editor that lets you design your own multi-coloured characters.
- A selection of fast print routines that will move sprites both in front or behind other objects on the screen.
- Map generators that will squeeze a Mode 5 screen into 8 bytes!
- Scrolling maps.
- Score update and printing routines.

. . . and much, much more.

To help you make the most of the Arcade Game Creator, you will also get a comprehensive manual based on the original series.

Written in an easy to read style and with many illustrations and screen shots, it contains all the information you need to create and animate sprites, to design backgrounds and to link the two together into a complete arcade game.

If you are an aspiring games programmer, this is an offer you simply cannot afford to miss!

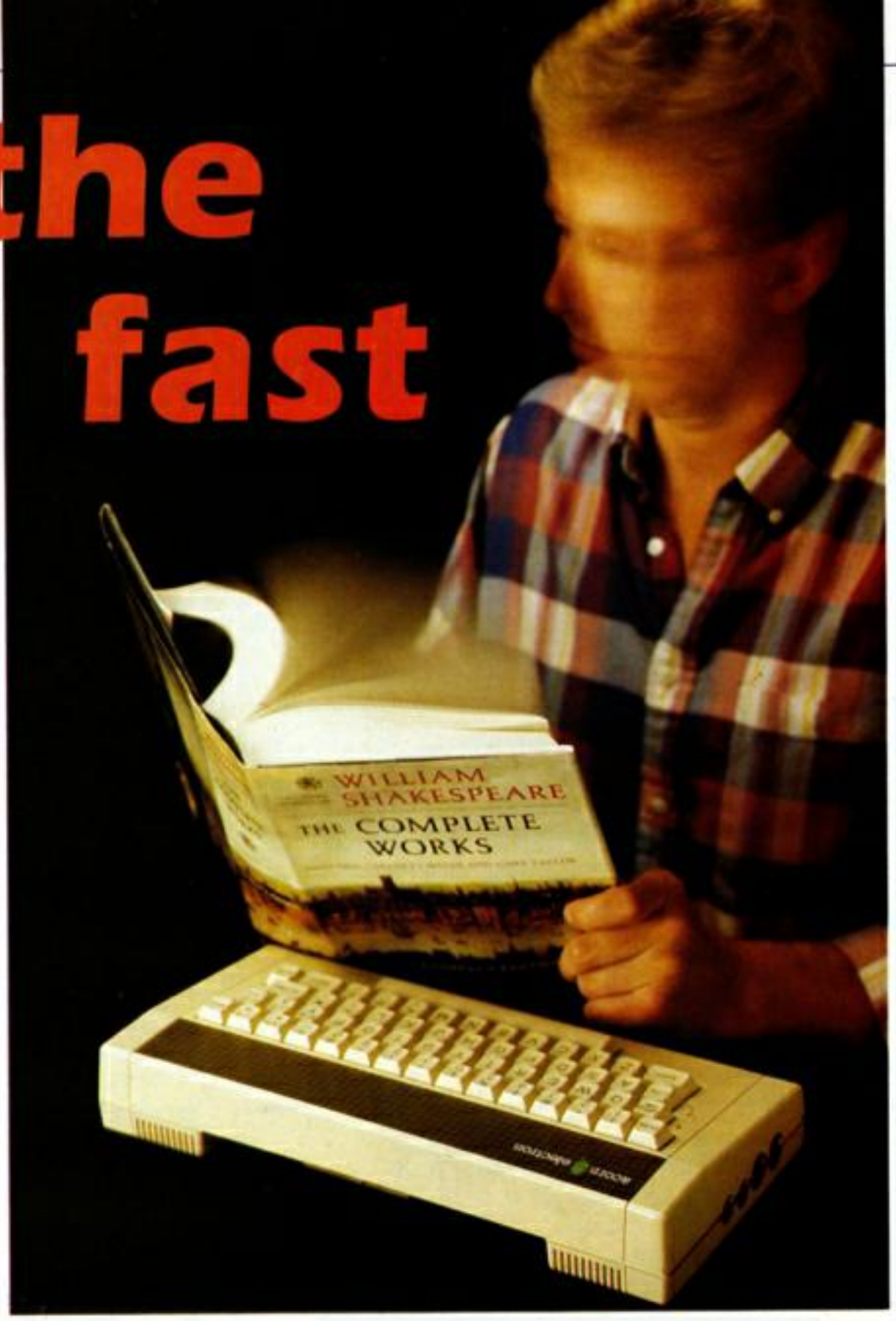


Screens designed using Arcade Game Creator

Arcade Game Creator	
Tape + manual	£9.95

TO ORDER PLEASE USE THE FORM ON PAGE 43

Get the facts fast



Julie Boswell shows how you can improve your reading ability

IF you want to really zip through that rather turgid article on the mating habits of the wombat and still take in all the salient facts Speedy Reader may be just the answer.

The program attempts to improve your reading speed through a series of lessons, each of which is split into a number of simple but challenging tests. It is recommended that no more than one, or at most, two lessons be completed each day. The program is written in Basic and uses a simple menu system to select from seven options.

When you first run Speedy Reader you'll be presented with a menu screen. The first option is used to set the difficulty level. Run the program once a day and increment the level each time.

Option two is Flash numbers and in this test numbers are flashed on the screen, appearing for a fraction of a second. You must read them and then immediately type them in.

At top speed a number appears for just a few hundredths of a second before being erased. On level one the number consists of just one digit, but the size increases as you progress. The speed is automatically increased with each level and you are scored out of 10.

Menu option three is Flash phrases, and like Flash numbers, a word is flashed on to the screen and you have to type it in. The higher the level the more difficult the word.

Option four is a numeric memory test and like Flash numbers a number is flashed onscreen. This time though, the random number is quite large and you have around three seconds to memorise it before it disappears. You then have to type it in. As you progress through the lessons this random number becomes longer.

Option five tests your ability to remember strings of letters. Like previous tests, strings of letters are flashed on to the screen and you must memorise them and afterwards type them in correctly.

Start off on level one, but don't move up a level unless you can score at least 8 out of 10 in each of the tests. On the first level the tests are designed to be fairly easy, but they soon become more challenging.

After a week or so you should start to see improvements in your memory and reading speed.

```
  10 REM Speedy Reader
  20 REM By Julie Boswell
  30 REM (c) Electron User
  40 ON ERROR IF ERR=17 THEN RUN
 ELSE REPORT:PRINT " at line ";ER
L:END
  50 MODE 6
  60 VDU 19,0,4;0;
  70 level=1
  80 REPEAT
  90 CLS:VDU 23 1,1;0;0;0;
 100 PRINT TAB(9,2)"*** Speedy R
eader ***"
 110 PRINT TAB(10,5)"1. Set leve
l (";level;")"
 120 PRINT TAB(10,7)"2. Flash nu
mbers"
 130 PRINT TAB(10,9)"3. Flash ph
rases"
 140 PRINT TAB(10,11)"4. Alphabe
tic memory"
 150 PRINT TAB(10,13)"5. Numeric
 memory"
 160 PRINT TAB(10,15)"6. Instruc
tions"
 170 PRINT TAB(10,17)"7. Quit"
 180 PRINT TAB(10,21)"Press a ke
y...";
 190 REPEAT
 200 key=GET-48
 210 UNTIL key>0 AND key<8
 220 CLS
 230 VDU 23,1,0;0;0;0;
 240 IF key=7 END
 250 ON key GOSUB 290,360,500,79
0,930,1070
 260 UNTIL FALSE
 270 END
 280
 290 PRINT TAB(5,5)"*** Set Diff
iculty Level ***"
 300 PRINT TAB(8,9)"Press a key
(1 - 9)...";
 310 REPEAT
 320 level=GET-48
 330 UNTIL level>0 AND level<10
 340 RETURN
 350
 360 REM Flash Numbers
 370 score=0:T%=5*(10-level)
 380 FOR i=1 TO 10
 390 PRINT TAB(10,5)"*** Flash N
umbers ***"
 400 n$=""
 410 FOR j=0 TO level DIV 2
 420 n$=n$+STR$(RND(9))
 430 NEXT
 440 score=score-FNquestion(n$,T
%)
 450 PRINT TAB(14,20)"Score: ";s
core;"/10";
 460 key$=INKEY$(200):CLS
 470 NEXT
```

Turn to Page 22 ▶

◀ From Page 21

```
  480 RETURN
  490
  500 REM Flash phrases
  510 T%=20-level*2
  520 score=0
  530 FOR i=1 TO 10
  540 IF level=1 RESTORE 710
  550 IF level=2 RESTORE 720
  560 IF level=3 RESTORE 730
  570 IF level=4 RESTORE 740
  580 IF level=5 RESTORE 750
  590 IF level>5 RESTORE 760
  600 PRINT TAB(9,5)"*** Flash Ph
rases ***"
  610 FOR j=1 TO RND(10)
  620 READ word$
  630 NEXT
  640 score=score-FNquestion(word
$,T%)
  650 PRINT TAB(15,20)"Score:";sc
ore;"/10";
  660 key$=INKEY$(200)
  670 CLS
  680 NEXT
  690 RETURN
  700
  710 DATA you,far,car,cat,dog,ma
t,hat,bin,mud,dig
  720 DATA near,tree,over,blue,ha
ve,hope,that,help,then
  730 DATA touch,write,chose,byte
s,under,error,shown,right,steps,f
eels
  740 DATA please,coming,caught,h
igher,closer,topics,August,switch
,fairly,seemed
  750 DATA program,current,relate
d,reached,version,article,default
,guessed,creates,shorter
  760 DATA assemble,messages,swit
ching,correctly,statement,monochr
ome,interested,explaining,previou
s,hardware
  770 VDU 23,1,0;0;0;0;
  780
  790 REM Alphabetic memory
  800 score=0:T%=300
  810 FOR i=1 TO 10
  820 PRINT TAB(7,5)"*** Alphabet
ic Memory ***"
  830 n$=""
  840 FOR j=1 TO level
  850 n$=n$+CHR$(64+RND(26))
  860 NEXT
  870 score=score-FNquestion(n$,T
%)
  880 PRINT TAB(14,20)"Score: ";s
core;"/10";
  890 key$=INKEY$(200):CLS
  900 NEXT
  910 RETURN
  920
  930 REM Numeric memory
  940 score=0:T%=300
  950 FOR i=1 TO 10
  960 PRINT TAB(9,5)"*** Numeric
Memory ***"
  970 n$=""
  980 FOR j=1 TO level+2
  990 n$=n$+STR$(RND(9))
 1000 NEXT
 1010 score=score-FNquestion(n$,T
%)
 1020 PRINT TAB(14,20)"Score: ";s
core;"/10";
 1030 key$=INKEY$(200):CLS
 1040 NEXT
 1050 RETURN
 1060
 1070 REM Instructions
 1080 PRINT TAB(9,3)"*** Speedy R
eader ***"
 1090 PRINT '
 1100 PRINT " This utility is des
igned to improve"
 1110 PRINT " your memory and rea
ding speed by means"
 1120 PRINT " of a few simple tes
ts."
 1130 PRINT
 1140 PRINT " The first two tests
 improve your"
 1150 PRINT " ability to quickly
recognise numbers"
 1160 PRINT " and phrases. The se
cond two tests aim"
 1170 PRINT " to improve your mem
ory so you retain"
 1180 PRINT " more of the text yo
u read."
 1190 PRINT '
 1200 PRINT TAB(12)"Press a key..
.";
 1210 REPEAT UNTIL GET
 1220 RETURN
 1230
 1240 DEF FNquestion(q$,t%)
 1250 tab=(38-LEN(q$))DIV 2
 1260 PRINT TAB(tab,10)">";SPC(LE
N(q$));"<"
 1270 t=200+RND(200)
 1280 key$=INKEY$(t)
 1290 PRINT TAB(tab+1,10)q$
 1300 TIME=0
 1310 REPEAT UNTIL TIME>T%
 1320 PRINT TAB(tab+1,10)SPC(LEN(
q$))
 1330 PRINT TAB(tab,12)">";SPC(LE
N(q$));"<";TAB(tab+1,12);
 1340 VDU 23,1,1;0;0;0;
 1350 INPUT ""a$
 1360 VDU 23,1,0;0;0;0;
 1370 IF a$=q$ PRINT TAB(16,18)"C
orrect!" ELSE PRINT TAB(16,18)"Wr
ong!";TAB(tab+1,10)q$:key$=INKEY$
(200)
 1380 =(a$=q$)
```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White

Moriana The Warrior

Moriana is a fearless warrior. What she lacks in brute strength is easily compensated by her body armour and sculptured shield. This is complimented by a razor-edged sword and makes her highly effective in hand-to-hand combat. And she alone can hack down the rank vines that can hinder progress.

Kaldor The Leprechaun

This skilled archer has little in the way of strength or armour but has 2 unique magical gifts. Firstly his ability to run like the wind can prove very useful to avoid hoards of enemies and to save precious time. Secondly he alone can leap over otherwise insurmountable mighty tree trunks.

White Magic – Where Good embodies Bad and Fantasy becomes Reality

White Magic is a unique arcade adventure in which you can actually transform between all 4 characters at any time during play. It features 32 massive action-packed levels filled with aggressive evil guards and trolls, haunting ghosts and spectres, curious objects to find and use, transporters and much, much more.

To complete the game you must survive all 32 levels, each with its own theme. Certain characters will fair better than others on different levels and it is your job to know when to transform between characters if you are to succeed.

White Magic is not a game for the faint-hearted; it is a fast-action game which requires fierce hand-to-hand combat and frantic weapon fire. Each character has his or her own levels of energy, weapon strength, magical power and armour. And by carefully collecting the artefacts as you progress through the levels you can develop each of the characters to their maximum potential.

Artefacts can be useful or harmful and include such things as potions, spellbooks, amulets, time-bombs, swords, time-pills, scrolls, shields, ammo-boxes, staffs and rings. White Magic puts you amongst heroes in a world of magic, danger and adventure. Is it all just a dream?

MAGIC

BBC MICRO
ACORN ELECTRON
ARCHIMEDES

Mandrake The Enchanter

A 200-year-old exponent of the Art of White Magic who can cast potions of great strength weakening all adversaries opposing him. He can also hurl deadly fireballs with great accuracy but has little armour and is severely weakened if he attempts hand-to-hand combat. He alone can cross the magic pentagrams blocking vital passageways.

Cheysul The Titan

This huge being has incredible strength and a massive axe allowing him to quickly annihilate all foes in his path. His great strength enables him alone to push gigantic casks out of his way. But he only has limited magical powers making his use of potions quite ineffective.

HOW TO GET WHITE MAGIC

White Magic is available now from most good games outlets. If there isn't a stockist near you then we offer an instant mail order service.

Simply send us a quick letter telling us the version you require, your name and address and payment via cheque, postal order or Access / Visa Card details. Your copy of White Magic will be sent by First Class Post on the SAME day we receive your letter. We pay the postage and packing (overseas add £3).

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The above screenshots are taken from the BBC and Electron versions.

The Fourth Dimension, P.O. Box 4444, Sheffield. Telephone (0742) 700661

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10

LINERS

Time is on your side

THIS handy utility will ensure you are never late for appointments – it's an alarm from Robert Henderson of Liverpool, Merseyside. You can set it to go off in as little as one minute or after four hours or more.

As it is an interrupt-driven machine code program that hides itself away in an unused portion of memory you can load and run other programs without affecting its operation. It's ideal when you are word processing or typing in a long program, but don't want to miss your favourite TV show. Alternatively, you could have it chiming every hour simply to remind you of the time.

Set the contents of &72 in line three to the number of minutes delay before the alarm is to sound, then run the program.

```
    1 REM Simple countdown timer
    2 REM R.Henderson '89
    3 OSCLI"FX13,4":?&70=50:?&71=
60:?&72=1
    4 FOR X=0 TO 2 STEP 2:P%=&900
:[OPT X:PHP:PHA:TXA:PHA:TYA:PHA:D
EC&70:BNE rts:LDA#50:STA&70
    5 DEC&71:BNErts:LDA#60:STA&71
:DEC&72:BNErts:LDA#1:STA&72:JMP b
eep
    6 EQUW 1:EQUW -1:EQUW 200:EQU
W 1:.beep LDX#10:.loop:DEX:STX&76
:LDA#7:LDX#b MOD256:LDY#b DIV256:
JSR&FFF1
    7 LDA#7:LDX#s1 MOD256:LDY#s1
DIV256:JSR&FFF1:LDX&76:BNEloop
    8 .rts PLA:TAY:PLA:TAX:PLA:PL
P:RTS
    9 .b EQUW1:EQUW-15:EQUW100:EQ
UW4:.s1 EQUW1:EQUW-15:EQUW200:EQU
W4
   10 ]:NEXT:?&220=0:?&221=&9:*FX
14,4
```

On to a winner

THE second of our 10 Liners this month comes from Neil Cunningham of Girvan, Ayrshire. It's a superb horse racing simulation for up to six players, though you can play solo if you wish.

The game starts by asking you to enter the number of players taking part. Enter a number between 1 and 6. The course is then drawn and the six horses in the race wait patiently at the start while you study the bookmaker's odds displayed onscreen.

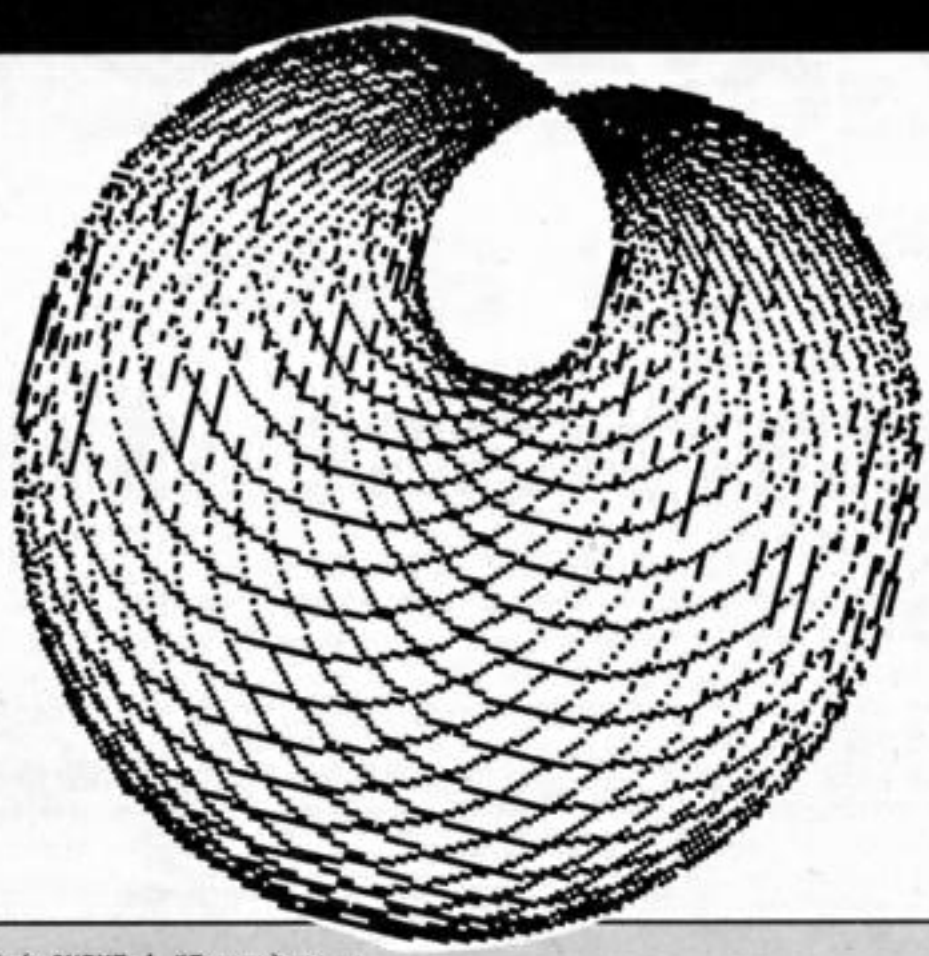
You have £200 to start with, so select your horse and place your bet. When everyone has done so the horses gallop across the screen from left to right. The winner is announced and each player's winnings – or loss – and total amount of money are displayed on the screen.

The horses trot off and the next six line up at the start. Then it's back to studying the odds and placing bets. Take care, as you're kicked out of the game if you become bankrupt. Unfortunately, you're not with the listening bank and cannot ask for a loan.

The graphics, occupying the top third of the screen, are excellent considering the tiny

```
   10MODE1:OSCLI"FX11,0":VDU19,2,
2;0;:PRINT'"How many players? max
 6";:REPEAT:c%=GET-48:UNTILc%>0AN
Dc%<7:play%=c%:PROCinit:FORi%=1TO
6:am%(i%)=200:NEXT:REPEAT:bu%=0:P
ROChor:PROCcor:m%=0:FORi%=1TO6:IF
am%(i%)>99999999 m%=1:NEXT ELSE N
EXT
   20VDU17,3,17,129:PRINTTAB(8,0)
"Norca Park   Race Course"TAB(11,
12)"By Neil Cunningham":VDU17,128
:PROCsel:PROCrac:PROCadd:COLOUR3:
VDU26:PRINTTAB(13,6)"Press any ke
y.":K=GET:VDU28,0,22,39,13,12,26:
UNTILm%=1:PRINTTAB(15,6)"Banks bu
st":END
   30DEF PROCinit:VDU 23,224,255,
255,255,255,255,255,255,255,23,22
5,170,85,170,85,170,85,170,85,23,
226,0,0,255,17,17,17,17,17,23,227
,0,1,3,31,127,159,10,5,23,228,34,
198,191,253,248,248,36,68:DIM ho%
(6),pl%(6),bet%(6),am%(6),hx%(6):
ENDPROC
   40DEF PROChor:COLOUR1:PRINTTAB
(0,13);"Horse"TAB(0,14);"Odds":CO
LOUR2:FOR i%=1 TO 6:RESTORE:h%=RN
D(10):FOR j%=1 TO h%:READ a%:NEXT
:ho%(i%)=a%:PRINTTAB(6*i%,13);i%;
```

Going round in circles



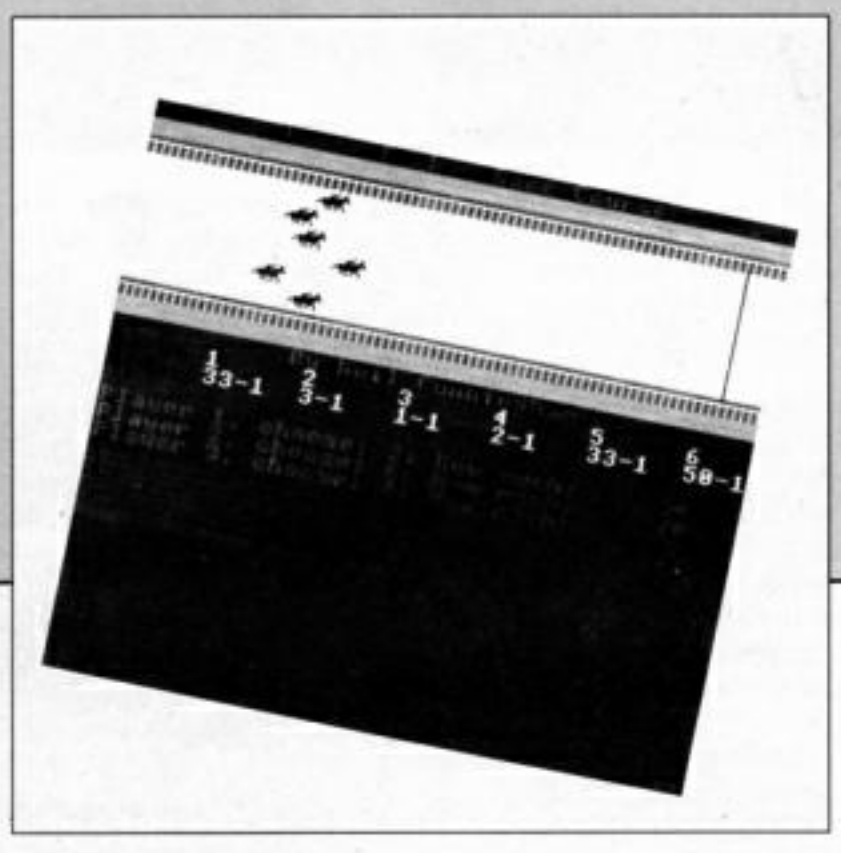
OUR third 10 Liner comes from Tricia Revest of London. This short program is a clever graphic demonstration of the Electron's drawing ability. The figure drawn is based on a series of circles drawn around a central point which itself moves round a circle.

When run, the program prompts you to enter a number between 1 and 400 which is used to modify the output, so different numbers produce slightly different results.

You can run the program in any mode by changing the MODE command in line 10. Also, try adding colour. A good place to insert a GCOL command would be as the first command in the procedure PROCcircle.

```
   10 MODE 4:INPUT ' "Type in a n
umber (1 - 400)";Y
   20 IF Y<1 OR Y>400 THEN GOTO 1
0 ELSE CLS:radius=100
   30 FOR J=0 TO 2*PI STEP 2*PI/3
6
   40 circle=SQR((radius*COS(J))^
2+(Y-(radius*SIN(J)))^2)
   50 PROCcircle(circle,radius*CO
S(J)+640,radius*SIN(J)+512)
   60 NEXT:END
   70 DEF PROCcircle(r,x,y)
   80 MOVE r*COS(0)+x,r*SIN(0)+y
   90 FOR I=0 TO 2*PI+0.05 STEP 0
.05:DRAW r*COS(I)+x,r*SIN(1)+y:NE
XT
  100 ENDPROC
```

```
TAB(6*i%,14);a%;"-1":NEXT:FOR i%=
1 TO 6:hx%(i%)=8:NEXT:GCOL3,2:END
PROC
   50DEF PROCcor:COLOUR 2:COLOUR
131:RESTORE:FOR i%=0 TO 21:READ a
%:IF i%>10 PRINTTAB(0,i%-10);STRI
NG$(40,CHR$a%):NEXT:VDU5:FOR i%=1
 TO 6:MOVEhx%(i%),956-i%*36:VDU22
7,228:NEXT:VDU4:MOVE1200,930:DRAW
1200,700:COLOUR128:ENDPROC ELSE N
EXT
   60DEF PROCsel:FORi%=1TOplay%:P
RINTTAB(0,15+i%);"Player ";i%;:IF
am%(i%)<=0 THEN VDU17,1:PRINT" is
 bankrupt...":pl%(i%)=0:bu%=bu%+1
:VDU17,3:NEXT:ENDPROC ELSE PRINT"
, choose; ";:REPEAT c%=GET-48:UNT
IL c%>=1 AND c%<=6:pl%(i%)=c%:PRI
NT;c%;
   70PRINT": How much; ";:b$="":R
EPEAT:REPEAT:PRINTTAB(35,15+i%)ST
RING$(LENb$," "):INPUTTAB(35,15+i
%);""b$:UNTILLEN(b$)<5:b%=VAL(b$)
:UNTIL (b%>0 AND b%<1001) AND b%<
=am%(i%):bet%(i%)=b%:am%(i%)=am%(
i%)-bet%(i%):NEXT:ENDPROC
   80DEF PROCrac IFbu%<play% REPE
ATs%=RND(6):MOVEhx%(s%),956-s%*36
:VDU5,227,228:hx%(s%)=hx%(s%)+8:M
OVEhx%(s%),956-s%*36:VDU227,228:e
%=1136:UNTILhx%(1)=e%ORhx%(2)=e%O
Rhx%(3)=e%ORhx%(4)=e%ORhx%(5)=e%O
Rhx%(6)=e%:VDU4,28,0,31,39,23,12:
ENDPROC
   90DEF PROCadd:PRINTTAB(12)"WIN
NER ";s%TAB(25)"Credit":FORi%=1TO
play%:PRINT"Player ";i%;" wins ";
:IFpl%(i%)=s% win%=bet%(i%)*ho%(s
%):am%(i%)=am%(i%)+win%:PRINT;win
%TAB(26);am%(i%):NEXT:ENDPROC ELS
E PRINT"NIL"TAB(26);am%(i%):NEXT:
ENDPROC
  100DATA 1,2,3,4,5,10,20,33,50,1
00,0,225,226,224,224,224,224,224,
224,224,226,225,
```



space the program has been shoe-horned into.

Don't add any extra spaces when typing in the listing as the lines are very nearly full and you may not otherwise be able to squeeze everything in.

Adventures By Pendragon

Golden orbs and darkest dungeons

SUMMER is truly with us in Camelot – you can tell because rainwater is seeping less quickly through the roof of the Great Hall and my trusty adventurers are more than ever seeking the cool of the dungeons.

My golden orb, pinched from Aalinor, shines ever more brightly as I once more read the scrolls and parchments which have tumbled this way since last we spoke.

A few adventurers – including Alan Medcalf and Andrew Ayre – have written to ask where they can buy copies of adventure writing utilities such as Gilsoft's The Quill and Incentive's Adventure Creator.

As I have already intimated, it appears that The Quill is no longer produced for the Electron. However, various mail order companies such as Mithras Software hold some old stock and have been advertising it for sale recently. Alternatively readers could write directly to Gilsoft at 2 Park Crescent, Barry, South Glamorgan CF6 8HD.

The Adventure Creator is still available for the Electron and is advertised by many mail order companies in the pages of *Electron User*.

On a different matter, Alan Lawrence writes to ask for a stand alone compilation of the Adventurer's Glossary. This appears to be a popular idea, and I may compile a complete glossary in a future column.

John Unsworth of Sheffield asks if The Hobbit has been released for the Electron. It has not, but with a Slogger Master Ram board fitted, the BBC Micro version of the game will work after a fashion, providing you have toggled the Ram board switch to 64k.

Meanwhile Dragonrider Sir David Shepardson has written to reprimand my own kingship of our April fool prank in the April column.

If any reader has struggled to get hold of a copy of DUPE from stateside company FOP, or has placed an advance order for FOOL, shame on you – must be due to too much late night adventuring. For his impertinence David Shepardson has had his spurs removed and is now retitled Hamsterrider.

I must pass thanks to Emma Rutherford who has sent me a ream of maps for a number of Level 9 adventures. This has completed my library and I can now offer help on Colossal Adventure, Dungeon Adventure, Adventure Quest, Snowball, Return to Eden, The Worm in Paradise, Emerald Isle, Red Moon, Lords of Time, Lancelot and The Price of Magik.

A suitable software gift is now winging its way to Emma, who over the years has provided much help to these pages.

Finally, this month's featured map is of the opening scenario to Philosopher's Quest. This ought to help many adventurers who are stuck at the outset of this classic puzzler from Acornsoft.

Next month I continue this series with a guide to the openings to Adventure Soft UK's Kayleth.

● *That's it for this month, so until the orb stops shining, happy adventuring.*

Overture and Beginners

During the past two and a half years I have explained the processes of getting started, mapping an adventure, puzzle solving, overcoming dead ends, mazes, parser, atmosphere and have provided an extensive glossary of adventuring terms.

Now let's look at the basis of all good adventures – collecting and utilising objects.

The cardinal rule is: Pick up every item that can be carried and take it with you.

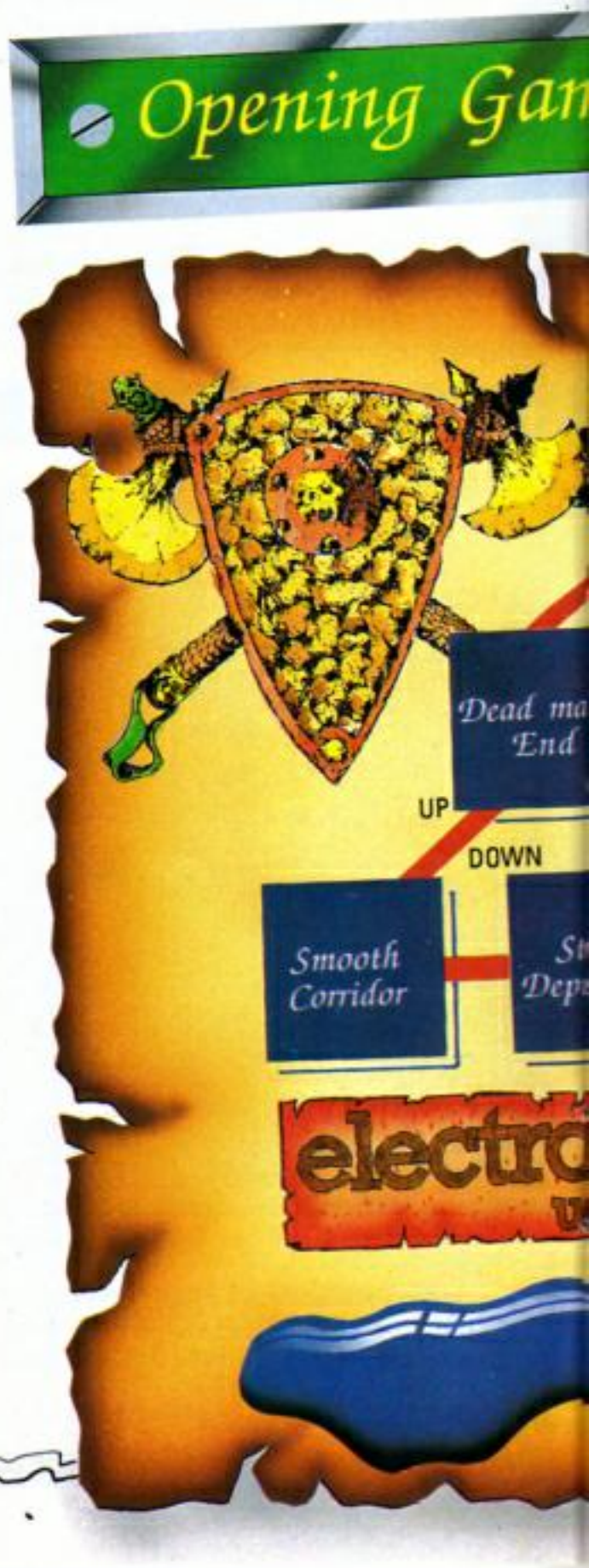
Some adventure authors strew a number of red herring objects in their world, but as you will not know for certain until the end of the game whether or not an item has served a purpose, the only safe course is to gather it up. A wait and see approach is best.

Most adventures put some form of restriction on the number, weight or type of objects that can be transported at any one time. If there is a knapsack, satchel, bag or any other form of container, it is as well to store as many objects in it as possible, since the normal run of adventures allow you to carry more that way. Once a limit has been reached, some things will inevitably have to be left behind.

At this stage, it is often a good idea to separate what appear to be crucial items or those that have a seemingly obvious use from the rest. The essential objects can be carried while the surplus can be stored together, ideally at some easily reached central location.

It doesn't always make sense to leave an object behind simply because you have already used it once – a crafty author may have arranged things so that a particular object is used to solve more than one puzzle. So far as is forseeable, make

Turn to Page 30 ►



◀ From Page 29

sure you can always get back to the storage location. It's no use dumping some of your objects on a shore, sailing off in a boat to an island and then, once there, chopping up your boat to make a fire if there is no alternative way back to your repository.

Back to your search. Objects can be hidden in all manner of places. Desks, cupboards, closets, sacks, vases – anything that is capable of containing something else should always be searched since their role may be that of concealment.

In that context, much less obvious containers such as grandfather clocks, ovens, radios, golf bags and birds' nests should all be scrutinised.

Book shelves are fair game, too. The very act of taking down a book from a library shelf may cause a secret passage or alcove to open.

All books should be opened and read. The two different actions may produce differing results – opening a book may cause something to fall out, while reading the tome may enlighten you as to the written contents.

Mirrors should be looked in, moved, looked behind, rubbed, manipulated so they shine at something, and if all else fails, smashed. A hammer is a handy breaking tool, and it also might be useful for banging in or removing, or driving stakes through the hearts of vampires.

Certain objects have a limited life, so you may have to try and make use of them quickly. For

instance, a lit candle may have to be brought into service before it burns down, especially if you had no matches or other means of relighting it if it is blown out. Icicles and other frozen matter may not last very long in a warm environment so use them quickly.

Some objects such as fragile vases do not take kindly to being dropped on a hard surface, so endeavour to let them down gently. A cushion may be the answer.

Some artifacts may have less than obvious uses, while others may require additional items to be added to them in order to construct a larger and quite different item.

In one adventure, a hammer, some wood, nails and canvas were all required to make a ship. In another, an empty wine bladder and some swamp gas were needed to make a bomb.

Cushions were mentioned earlier as a possible device for protecting fragile items. If the cushion happens to be of the inflatable kind, it could also be used to store liquids or gas, act as a springboard or even a lifebelt.

Rope is nearly always useful, but it may not come in the form you expect. So look out for sheets, scarves, cables, sashes, leashes, reins, vine or anything else that can be tied together to make a functional rope.

You also have to use your imagination when considering the role of a specific object, as the item's raison d'être may be quite subtle, yet provided the author has abided by the code of adventurers, always fair and logical.

Reasonably large-sized fragments of glass may serve as cutting tools, magnifying lenses or for focusing the sun's rays to start a fire. Other than as a light source, candles can also be useful as a waterproof coating – hot wax allowed to drip and cool – or for making a slippery surface.

Newspapers make good firelighters and possible containers as paper cones. They can really come into their own in that old trick of retrieving a key from the keyhole on the far side of a locked door: Pushing the key out with something like a paperclip, and withdrawing the paper when the key falls on to it.

Basically the moral from all this is never underestimate anything you may find. Get it, save it and use it.

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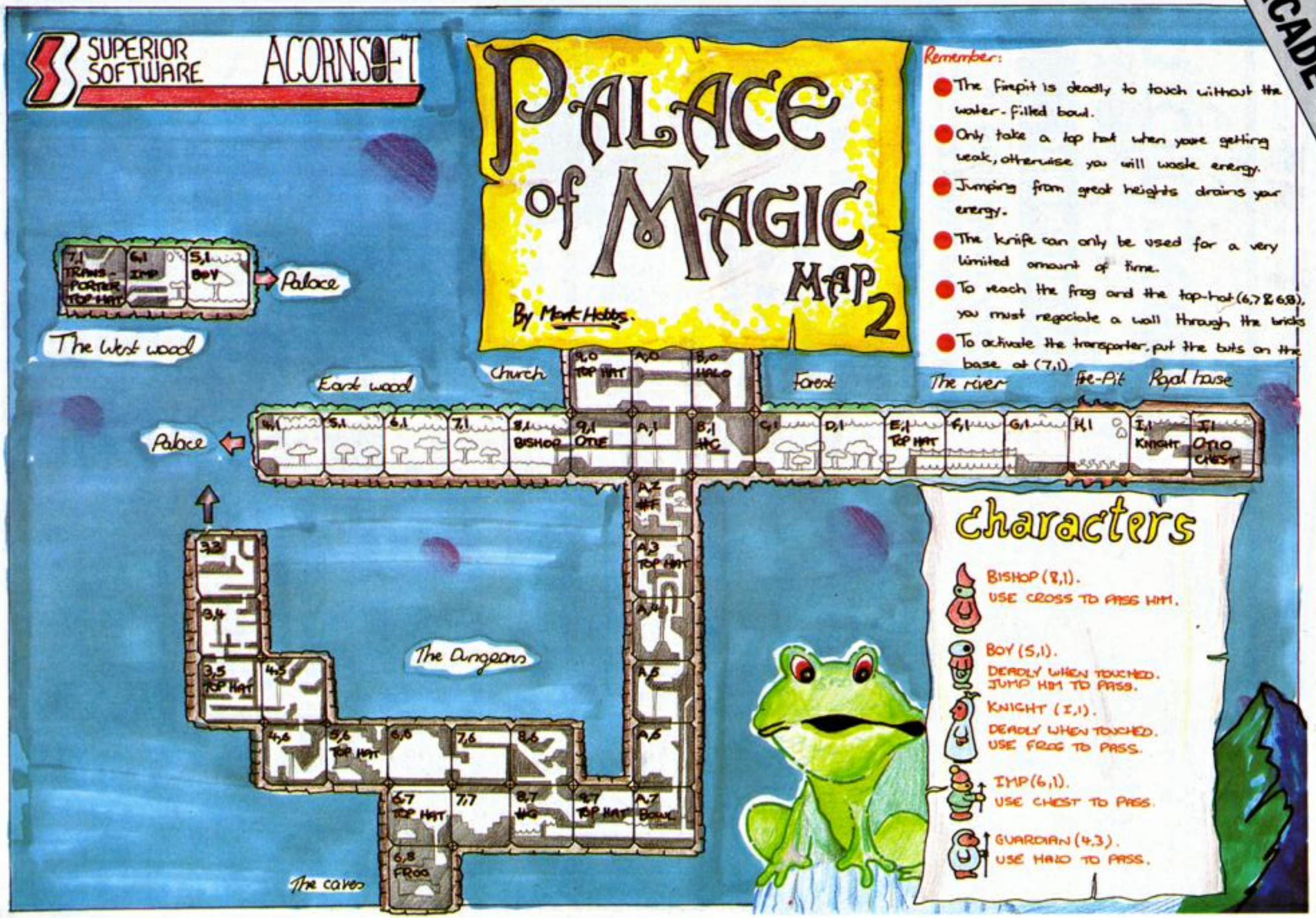
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6,1 IMP
5,1 BOY
Palace
The West wood
East wood
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9,0 TOP HAT
A,0
B,0 HALO
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The river
Fire-Pit
Royal house
4,1
5,1
6,1
7,1
8,1 BISHOP
9,1 OTIE
A,1
B,1 HC
C,1
D,1
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3,3
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3,5 TOP HAT
4,5
4,6
5,6 TOP HAT
6,6
7,6
8,6
6,7 TOP HAT
7,7
8,7 HG
9,7 TOP HAT
6,8 FROG
The Dungeons
The caves
characters
BISHOP (8,1).
USE CROSS TO PASS HIM.
BOY (5,1).
DEADLY WHEN TOUCHED.
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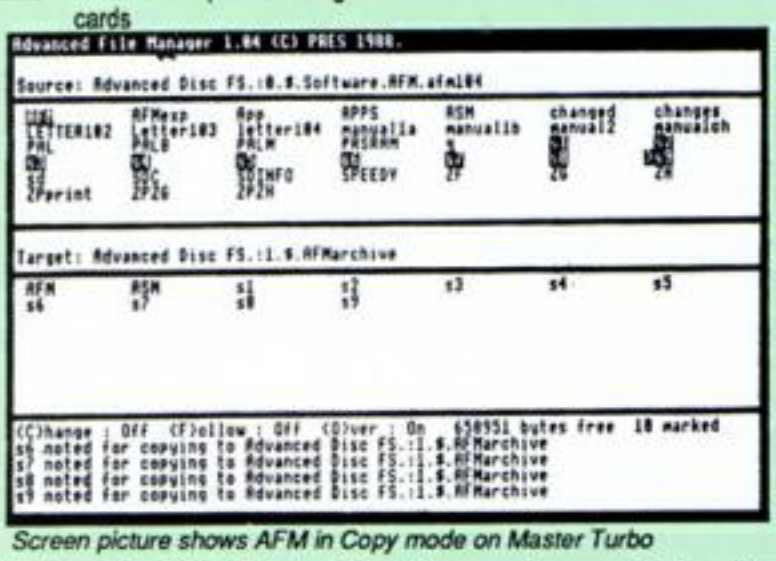

Screen picture shows AFM in Copy mode on Master Turbo

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DELETE – allows files to be marked and then deleted with one keystroke.

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COPY – the strongest feature of AFM. It is a two stage copy routine. With both source and target directories shown on screen the files to be copied are marked. Once all the files have been marked copying is started and the computer can be left to get on with it!

Large files can be split across several disks, and recombined.

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A standard Acorn approved cartridge but containing 32k (2 x 16k) of sideways RAM. The added bonus is the battery-backed feature that holds the RAM contents when the power is switched off! Different ROM images can be loaded into either bank from ROM images previously saved. The banks can also be locked to imitate ROM use. Now it is possible to have View & ViewSheet in one cartridge every time you switch on. Other uses include &E00 ADFS, printer buffer, ROM software development. The use of ABR is simplified by the newly written PRES software utilities which include:- SaveROM, LoadROM, Lock, Unlock, Printer Buffer, Zero and MakeROM a new utility to put your own software from disc or tape into ABR & use the ROM filing system. All software is supplied in ABR with a simple menu to transfer the utilities to your own media. No hardware switching – totally software controlled. Instructions for using supplied software and necessary information for users developing their own applications.

"It's a superb add-on and a must for all serious Electron users". . . *Electron User*

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DISC INTERFACES (Plus One required)

AP3 INTERFACE: As supplied with AP3 package. A fully Acorn compatible disc interface that will accept any standard 5.25" or 3.5" 80T drive with PSU. It runs Acorn's ADFS (as supplied on Acorn Plus Three, Master 128, Master Compact and now the Archimedes) supplied with A.D.F.S. manual and welcome disc + Utilities and 3 bonus games (please specify 3.5" or 5.25" 80T format). Also provides a spare 16K rom socket.

Price £52.00 ex VAT £59.80 inc VAT

AP4 INTERFACE: A fully Acorn compatible disc interface that will accept any standard 5.25" or 3.5" drive with PSU. It runs the 1770 DFS (as fitted in the BBC 'B' and Master) keeps pace at &E00 – has utilities in rom and provides a spare 16K rom socket (DFS manual included.

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AP34 INTERFACE: Get the best of both filing systems. Now available from PRES the ultimate interface. Fitted with both Acorn approved filing systems. . . Acorn's current standard ADFS and Acorn 1770 DFS (which can be run at &E00) ADFS and DFS manuals supplied + ADFS welcome disc with utilities.

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Please state 5.25" or 3.5"

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We feel this is one of the best, low cost, additions we have produced for the Electron & +1 user, especially for Plus 3, AP3 & ABR users.

Now with this easy to fit upgrade you can add:

1. Fix for Tape filing system in Hi-res screen modes.
2. *ROMS – to display all ROMs/ROM images present on the system.
3. *UNPLUG – disable ROM/RAM image.
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5. *KILL – to totally disable the Plus 1.
6. *LOCK – to lock a sideways RAM bank in ABR, AQR, AP7.
7. *LROMS – to lock all sideways RAM banks found.
8. *UNLOCK – to unlock a sideways RAM bank in ABR, AQR, AP7.
9. *UROMS – to unlock all sideways RAM banks found.
10. *SAVEROM – saves a copy of a ROM image to the current filing system.
11. *LOADRUN – loads a ROM image from the current FS into a RAM bank.
12. *FORMAT – will format an ADFS disc for Plus 3 or AP3.
13. *VERIFY – reads and tests every sector on an ADFS disc.
14. *VFORM – formats and verifies an ADFS disc in one command.
15. *BUILD – creates a text file that can be used by *EXEC (ie !BOOT).
16. *LIST – displays a numbered listing of a text file.
17. *TYPE – displays a file on screen with no line numbers.
18. *DUMP – to view a file's contents on screen.
19. *LANG – selects a default language to be booted on <CTRL-BREAK>
20. *HELP – provides a full 'help' list on all the ROM's commands

STOP PRESS

21. *AQRPAGE– selects the specified page in any AQR present.

Now there is no need to search for your utilities disc every time you want to Format/Verify a disc, Build a !Boot file or Lock/unlock/Load a ROM image into ABR PLUS much more . . . the ideal companion from the company that produces the Acorn Plus 1.

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PRES ABR SOFTWARE

The new PRES ABR software now available separately containing: SaveROM, LoadROM, Lock, Unlock, Printer Buffer, Zero and MakeROM a new utility to put our own software from disc or tape into ABR & use the ROM filing system. Supplied on 3.5" ADFS or 5.25" DFS disc.

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An internal battery-backed RAM upgrade for the Advanced Plus 6. TWO 16K pages of Sideways RAM, battery-backed and featuring full write protect facility. Just like ABR but fitted internally & vacating a cartridge slot. This product is compatible with all Acorn BBC/Master & Electron computers. **£39.50 ex VAT; £45.42 inc VAT**

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A new low cost unit for those who just require a user port interface. Supplied in a standard size, Acorn approved cartridge, with the standard connector on top. Inside is a spare ROM socket which can also be configured for high priority use such as mouse software.

£19.99 ex VAT; £22.95 inc VAT

ADFS VERSION 1.1
Suitable for existing Plus 3 or A.P.4 users. This new version has the software fixes for Zysyshelp, write protect disable & compaction. Also Winchester code has been replaced with the necessary driving software to handle AQR as a 256k RAM DISC. Please note – ADFS is Acorns adopted standard filing system supplied on the Plus 3, Master 128, Master Compact & now the Archimedes. Supplied on 16k ROM with Welcome disc & utilities. Please state 3.5"/5.25" welcome disk.
£14.95 ex VAT; £17.19 inc VAT
(ADFS manual supplied separately)

ADFS E00
For Electron users with either Plus 3 or A.P.4 and 32k of S/W RAM i.e. ABR. All the benefits of ADFS but without all the loss of RAM! Includes all the software 'fixes' as in version 1.1 as well as the AQR/RAM DISC code and an 'FX' call for managing the new & original ADFS. One of the most frequent questions we are asked: "How do I get back the memory lost on my Plus 3 system?" Answer: PRES ADFS &E00 regains 3.75k leaving page @ &E00 the same as Tape!
ADFS E00 supplied; 3.5" ADFS (manual available separately)
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5.25" ADFS (manual avail. sep.) **£14.00 ex VAT; £16..10 inc VAT**
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VIEW CARTRIDGE . . . the Acornsoft word processor for the Electron and Plus 1. Inc. full documentation. £14.95
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ACCESSORIES

ELECTRON POWER SWITCH
For those who are fed up with removing the power connector every time when resetting the computer or for those whose jack-plug connector has become unreliable by removing the power at random! This useful accessory provides a double-pole in-line switch with a new power jack-plug already attached: just connect to the existing lead, having removed the old jack-plug. **£3.96 ex VAT; £4.55 inc VAT**

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Replaces existing drive cable with one containing an extra connector for adding a second drive configured as Drive 1.
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Converts the fitting at the back of the original Acorn Plus 3, to take a standard disc drive connector when adding a second drive which has been configured to Drive 1.
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5 adventures available on disc for Electron users. Each game is sold separately on disc: Ultimate Prize, Dreamtime, Pirates Peril, Taroda Scheme and Stranded.
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Turns your Electron into a computerised music production studio in which you can take a piece of music all the way from a sheet score, an idea of your own or one of the supplied examples, through entry, arrangement, replay and 'live' mix-down to a finished performance complete with custom instruments and studio effects.
Music 5000 is supplied as a powerful, stereo, digital, eight voice, 16 channel synthesiser with ROM software (containing the AMPLE language), disc software containing the example music files and full documentation.
The requirement for Electron Music 5000 is . . . Electron, Plus 1, disc system (3.5 or 5.25 drive) running DFS or ADFS (preferably @ &E00) i.e. Acorn Plus 3, A.P.3 or A.P.4, 1 MHz bus (best option A.P.5.), and hi-fi amplifier or similar (Music 5000 has a standard 5-pin DIN audio connector for sound output). (Please state disc size & FS when ordering) **£99.00 (ex. VAT) £113.85 (Inc. VAT)**

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Race against time

Defuse the timebombs before they explode, in Anthony Houghton's exciting arcade game

IN this fast-action arcade game you are given the task of guiding Bomb Squad officer Ben Bingley around the screen to find time bombs that have been placed by a malicious bug-eyed alien.

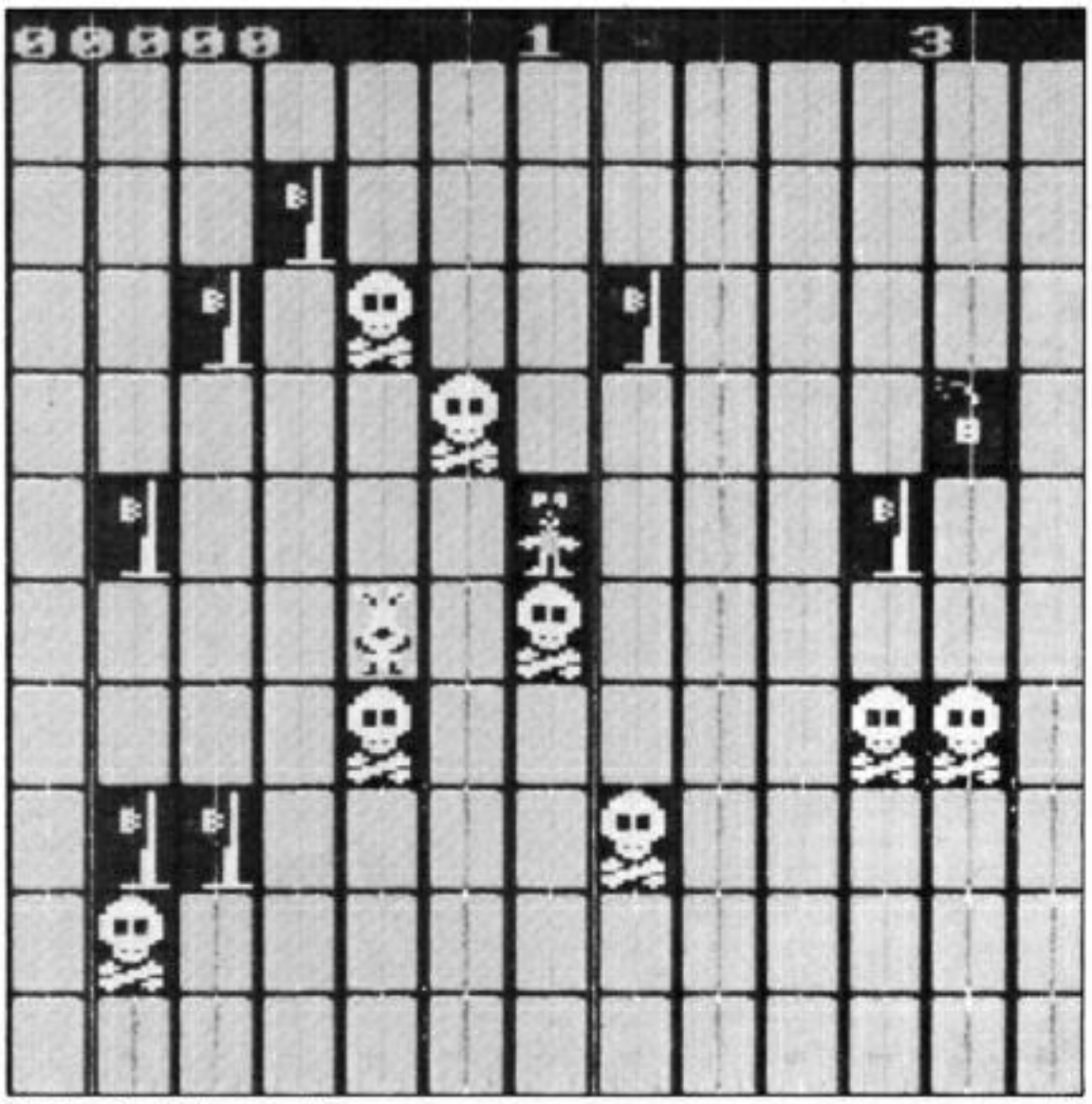
The screen is composed of tiles which Ben can walk over, but unfortunately, they crack and dissolve as he steps off them. This means he can't retrace his steps and he may sometimes become stranded on a tile surrounded by empty space.

There is a solution – the row of tiles he is standing on can be scrolled left or right providing nothing is blocking their path, so it is possible to move a tile towards him and have him step on to it.

Apart from becoming stranded, Ben must avoid deadly skulls and the bug-eyed alien that hops from tile to tile. Flags placed randomly around the screen can be collected for bonus points.

```
   10 REM Timebomb
   20 REM by A. Houghton
   30 REM (c) Electron User
   40 *FX11 20
   50 *FX12 20
   60 ENVELOPE1,1,50,-20,10,4,10,
10,126,0,0,-126,126,126:ENVELOPE2
,1,50,-50,5,4,4,20,126,0,0,-126,1
26,126:ENVELOPE3,129,-15,-8,-3,10
,10,10,126,0,0,-126,126,126
   70 PROCassem:REPEATMODE5:VDU23
;8202;0;0;0;19,2,6;0;19,3,3;0;:PR
OCtitle:!score=0:level=1:?lives=3
:REPEATPROCscreen:*FX21
   80 ?dead=0:CALLmainloop:IF?dea
d=27UNTILTRUE:UNTILO ELSEIF?dead=
10PROCbonus ELSEPROCdie
   90 UNTIL?lives=255:VDU28,3,17,
16,15,12:PRINT'" GAME  OVER":PROC
d(250):UNTILO
  100 DEFPROCbonus:PROCd(10):FORN
%=10TO60STEP5:SOUND1,2,N%,2:NEXT:
PROCd(100):FORN%=1TO10*level:FORM
%=1TO4:CALLinsc:NEXT:CALLpscore:S
OUND0,-15,4,1:PROCd(5):NEXT:level
=level+1:PROCd(200)
  110 IFlevel=4 ?lives=?lives+1:E
NDPROC ELSEENDPROC
  120 DEFPROCd(t%):TIME=0:REPEATU
NTILTIME>t%:ENDPROC
  130 DEFPROCdie:IF?dead=&FF PROC
explode ELSEPROCmeanie
  140 ?lives=?lives-1:PROCd(200):
ENDPROC
  150 DEFPROCexplode:N%=0:FORy%=0
TO9:FORx%=0TO12:IFN%?area=14X%=x%
:Y%=y%
  160 N%=N%+1:NEXT,:CALLscalc:A%=
!ad:N%=0:FORY%=0TO2:FORX%=0TO23ST
EP4:N%!&C48=A%!(X%+Y%*&140):N%=N%
+4:NEXT,
  170 FORN%=4TO6:SOUND0,-15,N%,20
:NEXT:FORN%=1TO10:!os=A%:!od=&AB0
:*FX19
  180 CALLprint:PROCd(10):!os=A%:
!od=&C48:*FX19
  190 CALLprint:PROCd(10):NEXT:EN
DPROC
  200 DEFPROCmeanie:RESTORE970:IF
?dead=20 ?dead=15
  210 FORN%=0TO?dead:READB$:NEXT:
B%=EVAL("&"+B$):X%=?manx:Y%=?many
:CALLscalc:A%=!ad:FORN%=200TO100S
TEP-20:SOUND1,3,N%,2:!os=A%:!od=B
%:*FX19
  220 CALLprint:PROCd(10):SOUND1,
3,N%-10,2:!os=A%:!od=&990:*FX19
  230 CALLprint:PROCd(10):NEXT:EN
DPROC
  240 DEFPROCscreen:VDU26,12:FORN
%=0TO129:N%?area=1:NEXT
  250 COLOUR1:PRINTTAB(0,0)"SCORE
  LEVEL  LIVES":COLOUR2:CALLpscor
e:CALLplives:PRINTTAB(9,1);level
  260 FORN%=1TO8:X%=RND(11):Y%=RN
D(8):area?(X%+Y%*13)=2:X%=RND(11)
:Y%=RND(8):area?(X%+Y%*13)=4:NEXT
  270 area?58=3:?manx=6:?many=4:?
clkv=1:?clkm=&F:?clkl=2+level DIV
2:?rem=?clkl:?clkk=11-level:IF?cl
kk<3OR?clkk>10 ?clkk=3
  280 ?monx=1:?mony=1:?slo=1:FORY
%=0TO9:CALLrow:NEXT:area?58=0:?se
ed=RND(256):ENDPROC
  290 DEFPROCassem:RESTORE1000:FO
RN%=&900TO&AAFSTEP4:READA$:!N%=EV
AL("&"+A$):NEXT:FORN%=&AB0TO&AF7S
TEP4:!N%=0:NEXT:FORN%=&C00TO&C47S
TEP4:READA$:!N%=EVAL("&"+A$):NEXT
  300 IFINKEY-256=1timer=&29F ELS
Etimer=&2A0:REM BBC/ELK
  310 DIMarea 130,tab1 10,tab2l 1
0,tab2h 10:FORN%=0TO9:tab1?N%=N%*
13:A%=N%*&3C0+&5A80:tab2l?N%=A%MO
D256:tab2h?N%=A%DIV256:NEXT
  320 DIMtab3l 13,tab3h 13:FORN%=
0TO12:A%=N%*24:N%?tab3l=A%MOD256:
N%?tab3h=A%DIV256:NEXT
  330 DIMgtabl 15,gtabh 15:RESTOR
E970:FORN%=0TO14:READA$:A%=EVAL("
&"+A$):N%?gtabl=A%MOD256:N%?gtabh
=A%DIV256:NEXT
  340 DIMbtab 10:RESTORE980:FORN%
=0TO9:READA$:N%?btab=EVAL("&"+A$)
:NEXT
  350 os=&70:od=&72:ns=&74:nd=&76
:ad=&78:t1=&7A:t2=&7B:ar=&7C:t3=&
7E:bom=&7F:!ar=area
  360 manx=&80:many=&81:clkk=&82:
clkv=&83:clkm=&84:dead=&85:speed=
232:move=&86:score=&60:lives=&64:
seed=&87:clkl=&88
  370 monx=&8A:mony=&8B:mondir=&8
C:monf=&8D:rem=&8E:slo=&8F:DIMQ%2
000:FORP=0TO2STEP2:P%=Q%:[OPTP
  380 .scalc LDAtab3l,X:CLC:ADCta
```

```
b2l,Y:STAad:LDAtab3h,X:ADCtab2h,Y
:STAad+1:RTS
  390 .acalc STXt3:LDAtab1,Y:CLC:
ADCt3:TAY:RTS
  400 .sprite JSRprint:LDAns:STAo
s:LDAns+1:STAos+1:LDAnd:STAod:LDA
nd+1:STAod+1
  410 .print LDX#3:.prlp1 LDY#23:
.prlp2 LDA(od),Y:STA(os),Y:DEY:BP
Lprlp2:LDAos:CLC:ADC#&40:STAos:LD
Aos+1:ADC#1:STAos+1
  420 LDAod:CLC:ADC#24:STAod:LDAo
d+1:ADC#0:STAod+1:DEX:BNEprlp1:RT
S
  430 .row STYt2:LDX#12:STXt1:.ro
lp LDXt1:LDYt2:JSRacalc:LDA(ar),Y
:TAY:LDAgtabl,Y:STAod:LDAgtabh,Y:
STAod+1
  440 LDA#0:STAbom:CPY#6:BCCntbom
:LDA#&FF:STAbom:.ntbom
  450 LDXt1:LDYt2:JSRscalc:LDAad:
STAos:LDAad+1:STAos+1:JSRprint:BI
Tbom:BPLnnum:JSRdcdt
  460 .nnum DECt1:BPLrolp:LDYt2:C
PYmony:BEQmonh:RTS:.monh LDXmonx:
JSRscalc:LDAad:STAos:LDAad+1:STAo
s+1:LDA#0:STAod:LDA#&C:STAod+1:JM
Pprint
  470 .man LDA#0:STAmove:LDXmanx:
LDYmany:JSRscalc:LDAad:STAos:LDAa
d+1:STAos+1:LDA#&90:STAnd:LDA#9:S
TAnd+1:LDA#&B0:STAod:LDA#10:STAod
+1
  480 LDA#129:LDX#0:LDY#0:JSR&FFF
4:CPX#ASC"Z":BNEntle:LDXmanx:LDYm
any:DEX:BPLnwrapl:LDX#12:.nwrapl
JSRgap:BEQpml:LDA#&FF:STAmove:STX
manx:STYmany:.pml JMPpman
  490 .ntle CPX#ASC"X":BNEntri:LD
Xmanx:LDYmany:INX:CPX#13:BNEnwrap
u:LDX#0:.nwrapu JSRgap:BEQpml:LDA
#&FF:STAmove:STXmanx:STYmany:JMPp
man
  500 .ntri CPX#ASC":":BNEntup:LD
Xmanx:LDYmany:DEY:BPLnwrapu:LDY#9
:.nwrapu JSRgap:BEQpml:LDA#&FF:ST
Amove:STXmanx:STYmany:JMPpman
  510 .ntup CPX#ASC"/":BNEntdo:LD
Xmanx:LDYmany:INY:CPY#10:BNEnwrap
d:LDY#0:.nwrapd JSRgap:BEQpml:LDA
#&FF:STAmove:STXmanx:STYmany:JMPp
man
  520 .ntdo CPX#ASC"A":BNEnscrl:L
DYmany:CPYmony:BNEnsml:LDAmonx:BE
Qpman:DECmonx:.nsml LDX#0:JSRacal
c:TYA:CLC:ADCar:STAt1:LDAar+1:ADC
#0:STAt2
  530 LDA(ar),Y:CMP#2:BCSpman:LDY
#0:.sllp INY:LDA(t1),Y:DEY:STA(t1
),Y:INY:CPY#12:BNEsllp:LDA#1:STA(
t1),Y:LDYmany:JSRrow:JMPpman
  540 .nscrl CPX#ASC"S":BNEpman:L
DYmany:CPYmony:BNEnsmr:LDAmonx:CM
P#12:BCSpman:INCmonx:.nsmr LDX#0:
JSRacalc:TYA:CLC:ADCar:STAt1:LDAa
r+1:ADC#0:STAt2
  550 LDY#12:LDA(t1),Y:CMP#2:BCSp
man:.srlp DEY:LDA(t1),Y:INY:STA(t
1),Y:DEY:BNEsrlp:LDA#1:STA(t1),Y:
LDYmany:JSRrow:JMPpman
  560 .pman LDA#21:LDX#0:JSR&FFF4
:LDXmanx:LDYmany:JSRacalc:LDA(ar)
,Y:CMP#4:BNEntded:STAdead:JMPntbm
h
  570 .ntded CMP#2:BNEntflg:LDA#0
:STA(ar),Y:LDX#5:.flsl JSRinsc:DE
X:BNEflsl:JSRpscore:LDX#flagso MO
D256:LDY#flagso DIV256:LDA#7:JSR&
FFF1:JMPntbmh
  580 .ntflg CMP#5:BCCntbmh:PHA:L
DA#0:STA(ar),Y:PLA:TAY:.gbl JSRin
sc:DEY:BNEgbl:LDA#7:LDX#bomso MOD
256:LDY#bomso DIV256:JSR&FFF1:JSR
pscore:DECclkl:BNEntbmh:LDA#10:ST
Adead
  590 .ntbmh BITmove:BPLddps:LDXm
anx:LDYmany:JSRacalc:LDA#0:STA(ar
),Y:.ddps LDXmanx:LDYmany:JSRscal
```



Watch out for the bug-eyed alien

```
c:LDAad:STAns:LDAad+1:STAns+1:BIT
move:BPLpmios:JMPsprite
  600 .pmios LDAns:STAos:LDAns+1:
STAos+1:LDA#&90:STAod:LDA#9:STAod
+1:JMPprint
  610 .gap STXt1:STYt2:JSRacalc:L
DA(ar),Y:PHP:LDXt1:LDYt2:PLP:RTS
  620 .insc SED:LDAscore:CLC:ADC#
1:STAscore:LDAscore+1:ADC#0:STAsc
ore+1:CLD:LDAscore:BNEdil:LDAscor
e+1:AND#&F:CMP#5:BEQinlv:CMP#10:B
EQinlv:.dil RTS
  630 .inlv LDAlives:CMP#9:BEQdil
:INClives:JMPplives
  640 .pscore LDA#30:JSR&FFEE:LDA
#10:JSR&FFEE:LDAscore+1:JSRpbyt:L
DAscore:JSRpbyt:LDA#ASC"0":JMP&FF
EE
  650 .pbyt TAX:LSRA:LSRA:LSRA:LS
RA:JSRpdig:TXA:AND#&F:.pdig CLC:A
DC#48:JMP&FFEE
  660 .plives LDA#31:JSR&FFEE:LDA
#16:JSR&FFEE:LDA#1:JSR&FFEE:LDAli
ves:JMPpdig
  670 .bcalc JSRscalc:LDAad:CLC:A
DC#&48:STAad:LDAad+1:ADC#1:STAad+
1:RTS
  680 .bombs DECslo:BEQgo:RTS:.go
 LDA#3:STAslo:LDY#9:STYt2:.bmlp1
LDX#12:STXt1:.bmlp2 LDXt1:LDYt2:J
SRacalc:LDA(ar),Y:CMP#5:BCCnfndbm
:JSRbomnum
  690 .nfndbm DECt1:BPLbmlp2:DECt
2:BPLbmlp1:LDAclkm:CMP#&F:BNEdmkn
b:JSRmknb:.dmknb LDAclkm:EOR#&F:S
TAclkm:RTS
  700 .bomnum LDAclkm:CMP#&F:BNEd
cdt:LDA(ar),Y:CLC:ADC#1:CMP#15:BN
Enexpl:LDA#&FF:STAdead:RTS:.nexpl
 STA(ar),Y:LDX#blip MOD256:LDY#bl
ip DIV256:LDA#7:JSR&FFF1:.dcdt LD
Xt1:LDYt2:JSRbcalc
  710 LDXt1:LDYt2:JSRacalc:LDA(ar
),Y:SEC:SBC#5:TAX:LDAbtab,X:STAod
:LDA#&A:STAod+1:LDY#7:.numlp LDA(
od),Y:ORAclkm:STA(ad),Y:DEY:BPLnu
mlp:RTS
  720 .blip EQUW1:EQUW-15:EQUW200
:EQUW1:.flagso EQUW2:EQUW1:EQUW50
:EQUW5:.bomso EQUW2:EQUW2:EQUW70:
EQUW5
  730 .mknb DECclkv:BEQpnbs:RTS:.
pnbs LDArem:BNEpnbs2:RTS:.pnbs2 D
ECrem:LDAclkk:STAclkv:.ranx JSRra
ndom:AND#8:CLC:ADC#3:TAX
  740 JSRrandom:AND#7:TAY:INY:CPX
monx:BNEokb:CPYmony:BEQranx:.okb
STXt1:STYt2:JSRacalc:LDA(ar),Y:BE
Qpubh:CMP#1:BNEranx:.pubh LDA#5:S
TA(ar),Y
  750 LDXt1:LDYt2:JSRscalc:LDAad:
STAos:LDAad+1:STAos+1:LDA#&20:STA
od:LDA#&A:STAod+1:JMPprint
  760 .random LDAseed:ROLA:ROLA:R
OLA:SEC:ADCseed:EORtimer+1:STAsee
d:RTS
  770 .monster LDA#0:STAmonf:LDAm
onx:CMPmanx:BNEnded:LDAmony:CMPma
ny:BNEnded:LDA#20:STAdead:RTS:.nd
ed JSRrandom:AND#3:BNEmonmv
  780 .chng LDA#&FF:STAmonf:LDAmo
ndir:CMP#3:BCCvert:JSRtowh:BCCmon
mv:JSRtowv:BCCmonmv:JSRawah:BCCmo
nmv:JSRawav:BCCmonmv:RTS
  790 .vert JSRtowv:BCCmonmv:JSRt
owh:BCCmonmv:JSRawav:BCCmonmv:JSR
awah:BCCmonmv:RTS
  800 .monmv LDAmondir:CMP#1:BNEn
mol:LDXmonx:DEX:LDYmony:JMPmon
  810 .nmol CMP#2:BNEnmor:LDXmonx
:INX:LDYmony:JMPmon
  820 .nmor CMP#3:BNEnmup:LDXmonx
:LDYmony:DEY:JMPmon
  830 .nmup LDXmonx:LDYmony:INY
  840 .mon STXt1:STYt2:JSRmonchk:
BCCgot:BITmonf:BPLchng:LDXmonx:ST
Xt1:LDYmony:STYt2
  850 .got LDXmonx:LDYmony:JSRsca
lc:LDAad:STAos:LDAad+1:STAos+1:LD
A#0:STAod:LDA#9:STAod+1:LDA#0:STA
```

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```
nd:LDA#&C:STAnd+1
  860 LDXt1:LDYt2:STXmonx:STYmony
:JSRscalc:LDAad:STAns:LDAad+1:STA
ns+1:JMPsprite
  870 .towh LDAmonx:CMPmanx:BCCmo
nri:BCSmonle:.awah LDAmonx:CMPman
x:BCSmonri:BCCmonle
  880 .towv LDAmony:CMPmany:BCCmo
ndo:BCSmonup:.awav LDAmony:CMPman
y:BCSmondo:BCCmonup
  890 .monle LDXmonx:DEX:LDYmony:
LDA#1:STAmondir:JMPmonchk
  900 .monri LDXmonx:INX:LDYmony:
LDA#2:STAmondir:JMPmonchk
  910 .monup LDXmonx:LDYmony:DEY:
LDA#3:STAmondir:JMPmonchk
  920 .mondo LDXmonx:LDYmony:INY:
LDA#4:STAmondir:JMPmonchk
  930 .monchk CPX#&FF:BEQnogo:CPX
#13:BEQnogo:CPY#&FF:BEQnogo:CPY#1
0:BEQnogo:JSRacalc:LDA(ar),Y:CMP#
1:BNEnogo:CLC:RTS:.nogo SEC:RTS
  940 .mainloop JSRman:JSRmonster
:JSRbombs:JSRwait:LDAdead:BNEkill
:BEQmainloop
  950 .wait BITtimer:BMIwait:LDA#
speed:STAtimer:LDA#19:JSR&FFF4:LD
A#129:LDX#&8F:LDY#&FF:JSR&FFF4:TY
A:BEQkill:LDA#27:STAdead:.kill RT
S
  960 JNEXT:ENDPROC
  970 DATAAB0,900,948,990,9D8,A20
,A20,A20,A20,A20,A20,A20,A20,A20,
A20,C00
  980 DATA40,68,70,78,80,88,90,98
,A0,A8
  990 REM Graphics Data
 1000 DATA7878780F,78787878,F0F0F
00F,F0F0F0F0,E0E0E00C,E0E0E0E0,78
787878,78787878,F0F0F0F0,F0F0F0F0
,E0E0E0E0,E0E0E0E0,78787878,70787
8,F0F0F0F0,F0F0F0
 1010 DATAE0E0E0E0,E0E0E0,0,70301
00,7030100,CFAFCF0F,88888800,8888
8888,103,0,70FCFAF,11110103,88888
888,88888888,0,0
```

```
 1020 DATA11111111,FF1111,8888888
8,EE8888,3010000,7171713,F0F0E00,
F15BFBF,8000000,C0C0C08,3030707,7
7330001,4BA50F4B,F1F1E00F,8080C0C
,CC880000
 1030 DATA22,331100,AAAAE0E0,BBBB
AA,88,880000,33110000,66667733,FF
FFEE00,4444FFFF,88000000,CCCCCC88
,33776666,111111,FFFF4444,EEFF55F
F
 1040 DATA88CCCCCC,0,11667722,227
777,FF771100,11CC,CCCC88,88CCCC,4
0104000,2000,40800000,E202040,0,0
,7030301,7070707
 1050 DATAE10F0F0F,E12DE1A5,C0808
00,C0C0C0C,3070707,103,F0F0F0F,E0
F0F,80C0C0C,8,E10F0F0F,E1A5E1A5,E
10F0F0F,4B4B2D2D,E10F0F0F,E1A5E18
7
 1060 DATAE10F0F0F,E12DE187,A50F0
F0F,2D2DE1A5,E10F0F0F,E12DE12D,E1
0F0F0F,E187E12D,4B0F0F0F,E14B4BC3
,E10F0F0F,E1A5A5A5
 1070 DATA6A7B780F,7878787B,F9F9F
00F,FFFF6F69,64ECE00C,E0E0E0EC,79
787878,4B5B5B79,9FFFFFF6,FFFF9F09
,E8E0E0E0,2CACACE8,78787969,70697
8,6FFFFF6F,F06969,E0E0E868,E068E0
 1080 DEFPROCh(A$):A%=10:X%=&70:Y
%=0:FORN%=1TOLENA$:?&70=ASC(MID$(
A$,N%)):CALL&FFF1
 1090 VDU23,255,?&71,?&71,?&72,?&
72,?&73,?&73,?&74,?&74,255,8,10,2
3,255,?&75,?&75,?&76,?&76,?&77,?&
77,?&78,?&78,255,11:NEXT:ENDPROC
 1100 DEFPROCtitle:COLOUR1:VDU31,
6,1:PROCh("TIMEBOMB"):COLOUR3
 1110 PRINT'''" Guide Devilish Be
n"'"around the grid and"'"help hi
m to defuse"
 1120 PRINT"the timebombs beforet
hey reach zero."'"Unfortunately,a
s Bensteps on each tile,"
 1130 PRINT"it disappears, but"'"
Ben has been given"'"special powe
rs to"'"overcome this; he"
 1140 PRINT"can scroll a row of"'
"tiles as long as"'"there's nothi
ng in"'"the way of the edge.";
 1150 PRINT" Ben can collect thef
lags for a bonus,"'"but he must a
void"'"the skulls and the"'"bug-e
yed alien."
 1160 COLOUR2:PRINT'"Z- Left A-Sc
roll lftX-Right S-Scroll rt * - U
p"'"? - Down"
 1170 COLOUR1:PRINT'"Press SPACE
to play";:REPEATUNTILGET=32:ENDPR
OC
```

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TO ORDER PLEASE USE THE FORM ON PAGE 43

MICRO MESSAGES

Programming problems solved

I WOULD be grateful if you could help me with some programming queries: Is the sequence in which procedures appear in a program critical in any way? Many programs have the Procedures in random sequence. Is there any reason why they do not appear in the sequence they are called or in alphabetic sequence?

What does RND(-TIME) give?

In a function the following appeared:

```
F%=F%-R%=13
```

What does this set F% to? At the end of the function was:

```
=(F%=4)
```

*What reply does this give? Also what is the purpose of *FX5 in a program that does not print? What is the purpose of *FX16 in a program with no ADC input? What effect does *FX178,255,0 have?*

I have a Cumana DFS 40 track disc system which uses nine sectors per track with 512 bytes per sector. In articles about the Electron's DFS system there is reference to 10 sectors of 256 bytes, so the programs are not directly applicable to the Cumana system.

Apart from altering the number of sectors and bytes per sector, are there any other factors which I would need to change to enable the programs to run with Cumana discs? – **David Fidler, Calne, Wiltshire.**

● Procedures can appear in any order as it doesn't make the slightest bit of difference to the Electron. The function RND(-TIME) will seed the random number generator with a random number – the current time.

The first line of Basic sets *F%* to -1 or zero – TRUE or FALSE depending on whether:

```
F%-R%=13
```

is a true statement.

The second line of Basic again returns TRUE or FALSE depending on whether *F%* is equal to 4 or not.

The *FX5 only affects the printer, so will have no effect on a program that doesn't try to print anything. The *FX16 command can be used to speed up program execution by switching off the ADC if it doesn't use it. The keyboard can be switched off for the same reason with *FX178.

Programs – apart from ones which directly access the disc – don't need to know which disc filing system they are using and will work with both the DFS and Cumana DFS without any alteration.

Regular fixtures

I MUST congratulate you on producing such a magnificent magazine. It is perfect except for one thing. I think that the features which appear monthly should have set positions in the magazine. For instance, Arcade Corner could be on page 25 or Software Reviews could always be on page 34.

I have bought Electron User *for nearly four years now and the only thing that is in a set position is the news, and of course, the adverts on the inside front and back pages.*

I have a tricky problem with the game Codename: Droid. In the crews' quarters, in the last sector there is a lampshade that falls and blocks that part of the sector and I can't seem to get there quickly enough to go under or get or do something to make it go back up. I would be most grateful if you could help me, as if it wasn't for that I could be able to complete the game.

Is there any way to speed up the loading of tapes? If so, does it cost an arm and a leg and do I need a Plus 1 or some other add-on to attach it to? – **T. Rouse, Godalming, Surrey.**

● We published maps plus hints and tips to Codename: Droid in our April, May and June 1988 issues that may help. Can any readers provide additional clues?

You can't speed up loading of games from commercial tapes, but in the December 1987 issue we published a machine code routine to slightly speed up loading of your own programs. They can also be compressed into as small a space as possible – to reduce loading time and speed up execution – with Supercharger from the February 1989 issue.

As to fixed pages for regular features, that can be tricky. Articles vary in length, as do the number and required positions of adverts.

Flying the Jolly Roger

WITH reference to the article by Julie Boswell in your May issue concerning protection of programs, I would suggest that this is impossible. I am not a pirate, hacker or whiz kid, and have no real computer knowledge, being just a month short of my eighty-third birthday.

I believe I can copy any program, whether it be BBC Micro, Electron, Amstrad or any other program. – **J. Lymn, South Shields, Tyne & Wear.**

● The techniques outlined are designed to prevent anyone accessing your programs or data. They don't prevent them from being copied, just from being listed.

It is also possible to prevent them from being copied using a micro. However, it is impossible to prevent them from being copied using some sort of tape duplicator like a twin cassette tape deck found in many modern hi-fi sytems.

Golden praise for Exile

WHY didn't Exile receive a coveted Golden Game award? It's easily the best game ever and knocks Elite for six. Why do you have all the Second Opinions? I've hardly agreed with any of them.

What's all the fuss about the Barbarian II advert? They're only wearing glorified swimwear after all. Anyway, Acorn User censored it and it looks ridiculous. People who don't like the advert could always buy other magazines instead, such as Lawnmowing Weekly or Which Potato?, I'm sure they would find them entertaining.

That's all the moans, I think. At least if you print my letter I won't be able to complain about Micro Messages. – **David Young, Upper Wardington, Banbury, Oxon.**

● Exile is excellent. However, the reviewer didn't like the very poor scrolling and felt it could have been better. It just missed out on the Golden Game award because of this.

The Second Opinion supplies an alternative viewpoint in order to provide a more balanced and accurate review. It guards against reviewers being biased towards one particular type of game.

Mini Office on disc

I UPDATED my Electron to disc drive with the excellent Slogger Pegasus 400 and its tape to disc rom T2PEG400, as reviewed in January's issue of Electron User.

Slogger's advertisement and instructions with the T2PEG400 indicated that the Mini Office tape would work on disc. I had some initial problems where the tape would apparently copy OK, but the programs would not run. I eventually found that PAGE had to be changed to &5000. Of course, for copyright reasons the program will not run from disc

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without the T2PEG400 rom present.

However, my problem now is that when saving data it will only do so to tape and will only load data from tape which somewhat defeats the advantage of disc drives. Could you help me with a Fix program, or will the BBC Micro version work on the Electron? – **J. Darlington, Locksheath, Hampshire.**

● T2PEG400 always reverts to the tape filing system once a program has been loaded, so all data files will be read from and saved to cassette. You can't alter this.

Although we haven't tried it ourselves, we have had several reports from readers that the BBC Micro disc version of Mini Office will run on Electrons fitted with a DFS disc system.

Correspondence wanted

I HAVE been a reader of Electron User *for some years now and I find it a great help. Keep up the good work.*

I own two Electrons, a Plus 1, AP3, rom cartridge and Slogger's StarStore II and T2P3 tape to disc rom.

I recently bought a Brother HR10 printer and ran into problems. Despite much effort I can't get it to work properly. I have tried different dip switch settings and changed the lead, but only half the characters correspond. For example the letters A, B and C are fine but D, E, F and G come out as @, A, B and C respectively.

I must be doing something wrong, please can you help? Once set up correctly I presume it will print out from any software with a print function written into it, such as Slogger's StarStore II. – **Trev Wildman, Peterborough.**

● We haven't used this printer with the Electron, but can't see why it shouldn't work. First suspect a faulty lead; if a replacement doesn't work then try a friend's Electron if possible.

If the problem persists it must be the printer. Try different DIP switch settings, as the wrong character set may have been selected. As a last resort take your printer back to the shop to be tested.

Getting on the right track

I OWN a basic Electron and find your magazine very good on the whole. However, I must support Mr Brosyarn's letter from your May issue regarding the lack of instructions by some contributors on how to use their utilities.

I refer specifically to Tracker from your August 1988 issue. I have typed in the program but then what? How do I enter the program to be disassembled?

*Incidentally, using the command given in the article *TRACKER results in a* Bad command *error message appearing. Using *RUN works fine, giving an appearance identical with the illustrations in the article.*

What do I enter when Enter ROM number *appears? –* **A. Langley, Stevenage, Hampshire.**

All programs printed in this issue are exact reproductions of listings taken from running programs which have been thoroughly tested.

However, on the very rare occasions that mistakes may occur corrections will be published as a matter of urgency. Should you encounter error messages when you type in a program they will almost certainly be the result of your own typing mistakes.

Unfortunately we can no longer answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the mail pages.

● First you must run Tracker to assemble and save the machine code. Load a program to disassemble and set D% to the memory address to examine/disassemble. Type *RUN TRACKER (or just *TRACKER if you have a disc system). Tracker will load and run, displaying from the memory address you set in D%.

You can quit by pressing Escape and a new address can be entered into D%. *GO will then re-enter Tracker at the new address. If you try to examine memory between &8000 and &BFFF you'll be asked which rom you want to disassemble. Enter a number between 0 and 15 (Basic is rom 10).

Sound ideas required

COULD Electron owners who have a 4-Channel Sound Cartridge or a Jafa Mode 7 Adaptor (hardware version, not rom), or even both, please get in touch with me to exchange ideas and experiences.

I would be interested to know how many people actually bought this equipment, especially the sound cartridge.

Keep up the good work Electron User *and I hope you will still be going in years to come. –* **Brett Colley, 61 Babbacombe Gardens, Redbridge, Ilford, Essex IG4 5LZ.**

The search for software

RECENTLY I bought a second-hand Electron system consisting of computer, cassette recorder, Plus 1, printer and monitor. I have been able to obtain View and Viewsheet cartridges, but am having difficulty finding other software appropriate to my needs.

Where could I find a Pascal cartridge, for instance, and software suitable for assisting with a small retail outlet's accounts? Is there any BBC Micro software for the latter which could be used? I would be very grateful for any assistance. – **D. Anderson, Selkirk.**

● Acornsoft produced a superb Pascal package consisting of a rom cartridge, two manuals and a function keystrip. It is in very short supply, so you'll have to ring round the suppliers to see if they have one in stock.

Cashcare, VAT Care and Building Society Care could help with your accounts, but again, these are in short supply, so finding a retailer is difficult. Viewsheet can easily be programmed to handle accounts, bank balances and so on, and this may be a viable solution.

Poke please for Bug Eyes II

HAVING looked through past issues of Electron User *I have not come across a poke for the game Bug Eyes II. I wonder if you would try to find out how it is done and give it a place in the next Arcade Corner? –* **Chris Haines, Rudry, Mid-Glamorgan.**

● Can any reader help Chris with a cheat poke for this game?

A little late for Easter

FIRSTLY I would like to thank Anthony Houghton for Eliminator in your May issue. After loading it from the free tape I found it an enjoyable escapade and played it for many hours.

On the inside front cover of the same magazine is an advert from Superior Software advertising six games for Easter. Is the editor aware that Easter was on March 26 this year? **– Tommy Clifford, Harrow, Middlesex.**

● We work so far in advance that the May issue of the magazine, including the advert, was finished before Easter. It went on sale at the beginning of April, so only narrowly missed Easter. In retrospect the advert would have been better in the April issue.

Upgrading with loadsamoney

I HAVE owned an Electron for about four years and have found it a great little micro. Recently I started work and can now find more money to spend on improving my computer.

At the moment I have just the basic set-up – Electron, tape recorder and TV. I would like to increase the memory size to enable me to write longer text adventures. Will I need a Plus 1 or Rombox and which is best?

I would also like to buy a printer. Could you recommend one and would it be compatible with both the Plus 1 and Rombox?

I have seen Slogger's Master Ram Board,

Infinity is still causing some confusion

I WAS interested to see the letter from your correspondent D. Bibby in your May issue of Electron User *regarding difficulties with Repton Infinity. I also received this game for Christmas and had the same problem. I sent the whole pack to Superior Software setting out my complaint in mid January.*

As I had not received a reply by March I wrote again and received a replacement. The faulty screen had a key in the top left of the screen. I was then able to progress. However, I found a fault on loading 3B and I was still unable to proceed. I wrote back to Superior and by return of post received a slip saying: "Repton Infinity is now completely bug-free but there is a remote chance that you have been sent one of the old data cassettes. Please find enclosed a new cassette".

This cured the problem, and I am now able to enjoy the latest edition of Repton Infinity. My actions have cost me postage in returning the games to Superior, for which I have not been reimbursed despite asking.

I am now stuck on completing level three on Repton 3B having achieved a score of 1,335 with no diamonds or monsters and cannot move on to level four. As Superior says there are no bugs left in Repton Infinity the problem must rest with me.

I suggest that your correspondent returns the whole games pack to Superior Software at Leeds to have it replaced.

Although I am aged 61, I thoroughly enjoy the challenge from Repton to Repton Infinity, although I think not having the joystick option on Infinity is a retrograde step. – **D. Bell, Redcar, Cleveland.**

★ ★ ★

IN reply to the letter from D. Bibby of Wrexham in your May issue, screen three of Repton Infinity Take 2 is not impossible. The key character is located at the top left-hand corner of the screen. From the start point this part of the screen is accessed by using the top left-hand transporter and then releasing the spirit to unlock the cage leading to the key.

The program builder on the May tape does not appear to work. The menu appears on the screen but on selecting option 9 Thinking... *appears on the screen, but that is the end, it never proceeds any further.*

On running the program with TRACE ON it shows that on reaching line 519 it enters an endless loop 510, 520 and 530 preventing any further action. Can you please tell me what is wrong with the listing? – **H.G. Hillier, Ellesmere, Shropshire.**

● We're not sure whether you've solved the original "impossible" version of Infinity or the later, modified version. Builder on the May tape does work, though it is quite slow and thinks for two or three minutes before drawing the newly-created landscape on the screen.

Make sure you have first set all the parameters required by selecting option one on the menu. Select option nine to draw it, then wait a while. You should be rewarded with an impressive volcanic island rising out of the sea.

but do I need either a Plus 1 or Rombox to use it? – **Nicholas Kearley, Horsham, West Sussex.**

● A Slogger Master Ram Board is the only way of increasing the amount of memory. You don't need a Rombox or Plus 1 to use it, but you do need a Rombox or Plus 1 to use a printer. Panasonic's KX-P1081 is a reasonably economical printer with a good quality output and is compatible with these add-ons.

Disappearing cartridges

I AM thinking of upgrading my Electron, having owned it for several years. I already have an AP1, AP2 rom and an AP6. Looking back at my collection of Electron User *there have been adverts by companies selling games for rom cartridge-based games. What ever happened to them?*

Will Pres' AP2 rom conflict with Slogger's Expansion Rom 2.0? – **R. Hand, Chatham, Kent.**

● Rom cartridges never really took off on the Electron. Perhaps it is their high production cost compared with cassette tapes. The few that were made are all excellent quality products that are now being sold very cheaply.

You can have either the Pres AP2 or Slogger Expansion rom 2.0, but not both. Both have different functions and features, each being geared towards making the respective company's other products more useful. As you already have Pres products we suggest sticking with them and going for the AP2 rom.

Shortcuts not required?

SINCE 1984 I have been a regular reader of Electron User *and I find the programming articles very useful.*

On Page 31 of the May issue there is a long program called Keyboard Shortcuts. It says that non-Basic word variables or strings cannot be entered by single key presses using the function key.

I have written a short program which uses function keys to produce variable names and expressions. To use the program enter the four lines:

```
10 *KEY 1 "length"
20 *KEY 2 "PRINT TAB("
30 *KEY 3 "WAIT=INKEY(100)"
```

Run the program. The key expressions will now be entered in the memory and will be produced when pressing Func+1, Func+2 and Func+3. A set of often used variables could be saved to tape and then loaded back before typing a new program. – **Peter Nicholson, Newcastle upon Tyne.**

● What you have done here is to program the function keys. You can assign any strings you like to all 10 of them. The strings are obtained by holding down the Func key and pressing 0 to 9.

The function keys referred to in Keyboard Shortcuts are obtained by holding down Func and pressing A to Z. These produce Basic keywords and you can't normally assign strings, variables or names to them like the numbered function keys. However, the utility we presented does enable you to do this, and effectively increases the number of function keys from the normal 10 to 36 – 0 to 9 plus A to Z.

Colourful kaleidoscope

I HAVE written a short program which continuously draws triangles of different colours and sizes. I think the effect on a colour monitor is amazing and that your readers will love it.

```
10 MODE 2
20 A=INT(RND(1)*1000+1)
30 B=INT(RND(1)*1000+1)
40 PLOT 85,A,B
50 PLOT 85,B,A
60 GCOL A,B
70 GOTO 20
```

– **Timothy Long (aged 10), Marston, Oxford.**

A game by any other name...

WHILE in Florida a few weeks ago I went into an arcade and played a game called Super Mario Brothers by Nintendo. I enjoyed it very much and wondered if it could be brought out on the Electron? – **Jeremy Savire, Bishop Wilton, Yorkshire.**

● Killer Gorilla by Micropower is the Electron version of this arcade game. It was released around five years ago and you might be able to pick up a copy for as little as £1.99.

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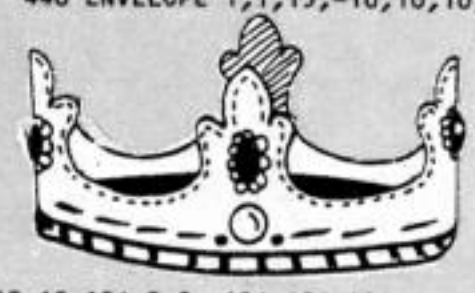
◀ From Page 13

```
B(15,22)" CONTROLS "TAB(5,24)" Z
= Left            * = Up    "TAB(5
,25)STRING$(30," ")TAB(5,26)" X =
 Right            ? = Down "
  370 COLOUR 128:COLOUR 2:PRINTTA
B(2,28)"(1) Hard    (2) Moderate
   (3) Easy"
  380 COLOUR 1:PRINTTAB(2,30)" Se
lect difficulty level? ( 1/2/3 )
":*FX21
  390 REPEAT key$=GET$:key=INSTR(
"123",key$):UNTIL key>0 AND key<4
  400 DL%=(key*3)+4
  410 ENDPROC
  420 DEFPROCinit
  430 VDU 23,1,0;0;0;0:CLS
  440 ENVELOPE 1,1,15,-10,10,10,-
```



```
10,15,126,0,0,-126,126,126
  450 DIM S$(24):level=0:lives=3:
SC%=0:Q%=0:DW%=248
  460 VDU 23,240,60,126,255,219,1
26,126,36,60,23,241,0,165,165,165
,255,255,255,126
  470 VDU 23,242,238,238,0,119,11
9,0,238,238,23,243,129,255,129,12
9,129,255,129,129
  480 VDU 23,244,8,64,2,40,0,36,0
,146,23,245,24,60,126,126,126,122
,126,126
  490 VDU 23,246,24,60,60,127,127
,60,60,24,23,247,0,0,0,0,255,0,0,
0
  500 VDU 23,248;0;0;0;0
  510 walkway$=STRING$(18,CHR$242
):fuse$=STRING$(10,CHR$247)
  520 lives$=STRING$(3," "+CHR$24
0):crowns$=STRING$(5,CHR$241+" ")
  530 path$=STRING$(18,CHR$248):s
pace$=STRING$(18," ")
  540 ENDPROC
  550 DEFPROCscreen
  560 crowns=0:level=level+1:HX%=
0:HY%=23
  570 IF level=1 PROCsetup
  580 VDU 28,0,24,17,1:CLS:VDU 28
,0,31,19,0
  590 COLOUR 2:PRINTTAB(5,13)"STA
GE  ";level
  600 PROCsound(2,100,200,10,2,1)
:PROCdelay(75)
  610 PRINTTAB(5,13)STRING$(8," "
)
  620 COLOUR 3:PRINTTAB(9,0)crown
s$
  630 FOR I%=2 TO 24
  640 S$(I%)=space$
  650 NEXT
  660 FOR I%=3 TO 24 STEP 7
  670 COLOUR 131:COLOUR 1:PRINTTA
B(0,I%)walkway$:COLOUR 128
  680 S$(I%)=walkway$:S$(I%-1)=pa
th$
  690 NEXT
  700 COLOUR 2:FOR LY%=2 TO 16 ST
EP 7
  710 REPEAT:A%=RND(8)*2:B%=RND(8
)*2:UNTIL A%<>B%
  720 PROCladder(A%,LY%):PROCladd
er(B%,LY%)
  730 NEXT
  740 COLOUR 6:PRINTTAB(17,2)CHR$
(245):S$(2)=LEFT$(S$(2),17)+CHR$(
245)
  750 COLOUR 7:PRINTTAB(HX%,HY%)C
HR$240
  760 ENDPROC
  770 DEFPROCplace_crowns
  780 REPEAT RI%=RND(4):CX%=RND(1
7)
  790 IF RI%=1 CY%=2
  800 IF RI%=2 CY%=9
  810 IF RI%=3 CY%=16
  820 IF RI%=4 CY%=23
  830 UNTIL ASC(MID$(S$(CY%),CX%+
1,1))=248 AND CY%<>HY% AND CX%<>H
X%
  840 COLOUR 5:PRINTTAB(CX%,CY%)C
HR$241
  850 S$(CY%)=LEFT$(S$(CY%),CX%)+
CHR$241+RIGHT$(S$(CY%),18-(CX%+1)
)
  860 COLOUR 7:PRINTTAB(1,27)"Col
lect the Crown"
  870 ENDPROC
  880 DEFPROCmove_head:*FX21
  890 H%=HX%+(INKEY-98 AND H%>0)-
(INKEY-67 AND H%<17)
  900 V%=HY%+(INKEY-73 AND V%>2)-
(INKEY-105 AND V%<24)
  910 IF H%<>HX% OR V%<>HY% ELSE
ENDPROC
  920 W%=ASC(MID$(S$(V%),H%+1,1))
  930 IF W%=248 OR W%=243 OR W%=2
41 OR (W%=245 AND crowns>4) ELSE
ENDPROC
  940 COLOUR 2:PRINTTAB(HX%,HY%)C
HR$DW%:COLOUR 7:PRINTTAB(H%,V%)CH
R$240;CHR$7
  950 HX%=H%:HY%=V%:DW%=W%
  960 ENDPROC
  970 DEFPROCtake_crown
  980 crowns=crowns+1:Q%=Q%+1:PRO
Cerase_crowns
  990 PRINTTAB(CX%,CY%)CHR$240
 1000 S$(CY%)=LEFT$(S$(CY%),CX%)+
CHR$248+RIGHT$(S$(CY%),18-(CX%+1)
):DW%=248
 1010 PROCsound(1,20,10,1,1,5):PR
OCdelay(50)
 1020 ENDPROC
 1030 DEFPROCset_question
 1040 REPEAT Q$=STR$(RND(level*10
))+MID$("+-*/",RND(4),1)+STR$(RND
(level*10)):UNTIL EVAL(Q$)=INT(EV
AL(Q$)) AND EVAL(Q$)>-1 AND EVAL(
Q$)<level*20:*FX21
 1050 COLOUR 1:PRINTTAB(1,27)spac
e$TAB(1,27)"What's ";Q$" = ":A$="
":FX%=0:OOT%=0:TIME=0
 1060 COLOUR 5:PRINTTAB(4,29)CHR$
246:COLOUR 7:PRINTTAB(5,29)fuse$:
COLOUR 8:PRINTTAB(15,29)CHR$244
 1070 REPEAT:T%=TIME DIV ((DL%-le
vel)*10)
 1080 COLOUR 8:PRINTTAB(15-T%,29)
CHR$244+" "
 1090 K$=INKEY$0:IF K$>"" AND ASC
K$>47 AND ASCK$<58 A$=A$+K$
 1100 IF ASCK$=127 A$="":PRINTTAB
(16,27)"   "
 1110 COLOUR 6:PRINTTAB(16,27);A$
 1120 UNTIL T%>9 OR (K$=CHR$(13)
AND LEN(A$)>0) OR LEN(A$)>2:IF T%
>9 OOT%=1
 1130 answer=VAL(A$):question=EVA
L(Q$)
 1140 ENDPROC
 1150 DEFPROCcheck_score
 1160 PROCdelete(27)
 1170 IF OOT%=0 AND answer=questi
on M$=" That is Correct  ":col=3:
PROCmessage:PROCsound(1,150,250,1
0,1,2):SC%=SC%+1:PROCupdate_score
:PROCdelay(50)
 1180 IF OOT%=0 AND answer<>quest
ion M$="That is Incorrect ":col=5
:PROCmessage:PROCsound(3,60,50,-1
,1,1):lives=lives-1:PROCerase_liv
es:PROCdelay(50)
 1190 IF OOT%=1 M$="Bomb has Expl
oded ":col=1:PROCmessage:FOR L%=1
 TO 4:VDU 19,0,11;0;:PROCsound(3,
100,50,2,0,2):NEXT:VDU 19,0,0;0;:
lives=lives-1:PROCerase_lives:PRO
Cdelay(50)
 1200 PROCdelete(27):PROCdelete(2
9)
 1210 ENDPROC
 1220 DEFPROCmessage
 1230 COLOUR col:PRINTTAB(1,27);M
$
 1240 ENDPROC
 1250 DEFPROCupdate_score
 1260 COLOUR 3:PRINTTAB(19,25-SC%
);CHR$241
 1270 ENDPROC
 1280 DEFPROCsound(l,f,s,st,c,d)
 1290 FOR I%=1 TO l:FOR J%=f TO s
 STEP st:SOUND c,1,J%,d:NEXT:NEXT
 1300 ENDPROC
 1310 DEFPROCgame_over
 1320 CLS:COLOUR 130:COLOUR 0:PRI
NTTAB(0,0)STRING$(20," ");TAB(0,1
)" DIFFICULTY LEVEL ";(DL%-4) DIV
 3;" ";TAB(0,2)STRING$(20," ");:C
OLOUR 128:COLOUR 1:PRINTTAB(4,7)"
You reached";:COLOUR 7:PRINTTAB(6
,12)"Stage ";level
 1330 COLOUR 1:PRINTTAB(1,17)"and
 your score was":COLOUR 3:PRINTTA
B(4,22);SC%" out of ";Q%:COLOUR 5
:PRINTTAB(1,28)"Another Go?  (Y/N
)"
 1340 PROCsound(5,200,100,5,1,10)
:*FX21
 1350 key=GET
 1360 CLS:lives=3:level=0:SC%=0:Q
%=0:DW%=248
 1370 ENDPROC
 1380 DEFPROCladder(x%,y%)
 1390 FOR I%=0 TO 7
 1400 PRINTTAB(x%,y%+I%)CHR$(243)
 1410 S$(y%+I%)=LEFT$(S$(y%+I%),x
%)+CHR$243+RIGHT$(S$(y%+I%),18-(x
%+1))
 1420 NEXT
 1430 ENDPROC
 1440 DEFPROCerase_crowns
 1450 PRINTTAB(9,0)STRING$(crowns
," ")
 1460 ENDPROC
 1470 DEFPROCerase_lives
 1480 PRINTTAB(lives*2,0)"  "
 1490 ENDPROC
 1500 DEFPROCexit
 1510 PROCdelay(50)
 1520 COLOUR 7:PRINTTAB(1,27)"Exi
t through door ":PROCsound(1,100,
250,10,1,3):REPEAT:PROCmove_head:
UNTIL HX%=17 AND HY%=2:DW%=248:PR
OCdelete(27)
```

```
 1530 ENDPROC
 1540 DEFPROCdelay(D%)
 1550 TIME=0:REPEAT:UNTIL TIME=D%
 1560 ENDPROC
 1570 DEFPROCsetup
 1580 COLOUR 1:PRINTTAB(0,0)lives
$
 1590 COLOUR 135:PRINTTAB(19,25)C
HR$32:COLOUR 128
 1600 GCOL 0,4:MOVE 32,44:DRAW 12
47,44:DRAW 1247,176:DRAW 32,176:D
RAW 32,44
 1610 GCOL 0,7:MOVE 1246,224:DRAW
 1246,1023:DRAW 1248,1023:DRAW 12
48,224:DRAW 1246,224
 1620 ENDPROC
 1630 DEFPROCdelete(y)
 1640 PRINTTAB(1,y)space$
 1650 ENDPROC
 1660 *TAPE
 1670 *KEY0 D%=PAGE-&E00:FOR I%=P
AGE TO TOP STEP 4:!(I%-D%)=!I%:NE
XT:PAGE=&E00|MOLD|MRUN|M
 1680 *FX138,0,128
```

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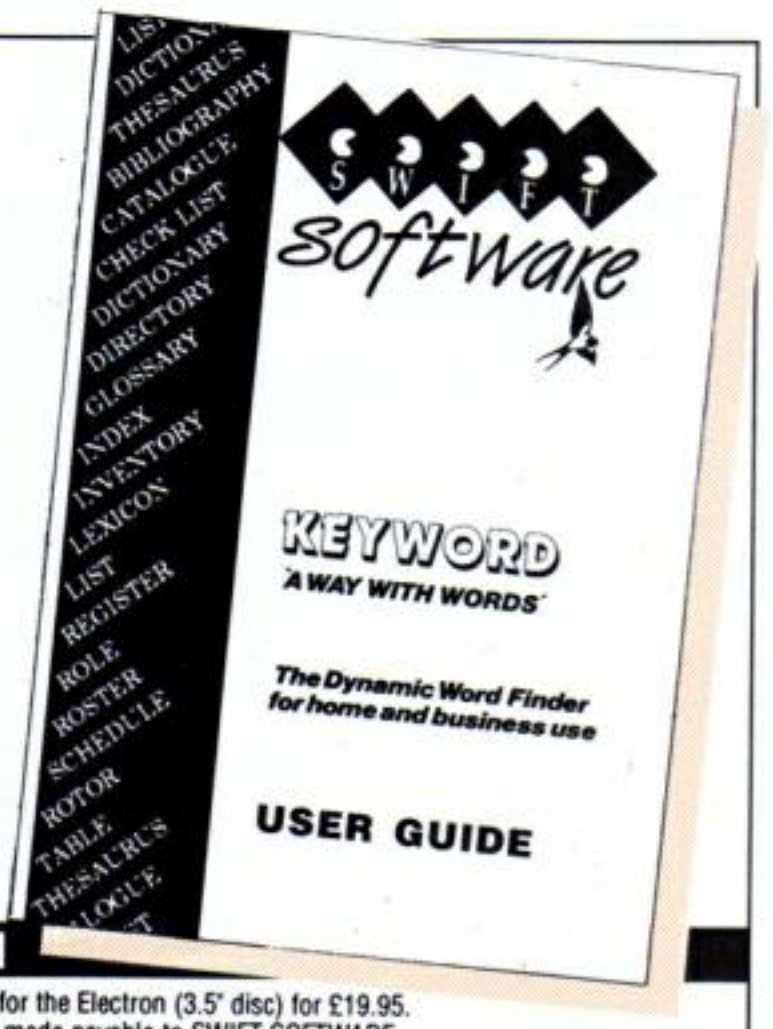

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